

Chapter 1-1. Introduction to Web Programming

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1. The Internet and WWW
2. Uniform Resource Identifier (URI)
3. Web Application model

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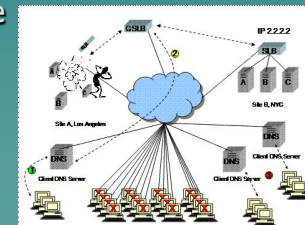
- ⇒ 1. The Internet and WWW
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1.1. The Internet

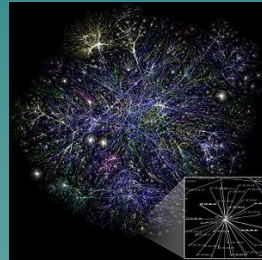
- ◆ A network of networks
- ◆ Began in 1969 as ARPAnet (Advanced Research Projects Agency)
- ◆ No central authority and thus impossible to state the precise size



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1.1. The Internet (2)

- ♦ Free access to central servers that allow machines and people to locate other machines by their **Internet address**.
 - e.g. 100.99.88.32



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1.2. The World Wide Web

- ♦ Developed by Tim Berners-Lee at CERN in 1990
- ♦ The idea of documents that contain hyperlinks to other documents on the Internet
- ♦ W3 or Web for short



NeXT Computer
The first Web server



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1.2. The World Wide Web (2)



- ♦ World Wide Web
 - a system of interlinked hypertext documents accessed via the Internet
- ♦ HyperText Markup Language (HTML)
 - document layout language for all Web Documents
- ♦ HyperText Transfer Protocol (HTTP)
 - allows any machine to load a document via a hyperlink from any other machine

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1.3. Web page or Webpage

- ♦ a Web document
 - a document or resource of information that is suitable for the WWW and can be accessed through a web browser and displayed on a computer screen
- ♦ usually in HTML or XHTML format
 - XHTML (Extensible HTML): Intersection between HTML and XML
- ♦ requested and served from web servers using HTTP.



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1.4. Web site or Website



- ♦ a collection of related web pages, images, videos or other digital assets that are addressed with a common domain name or IP address in an Internet Protocol-based network
- ♦ hosted on at least one web server, accessible via the Internet or a private local area network.



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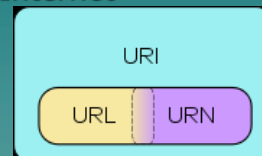
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2.1. URI (Uniform Resource Identifier)

- ♦ A string of characters used to identify or name a resource on the Internet

♦ Classification

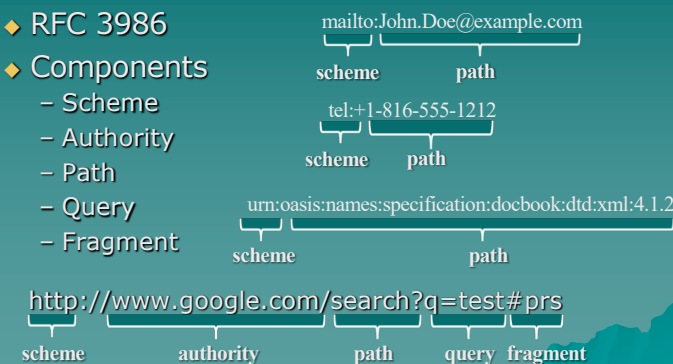
- URN: a person's name
- URL: that person's street-address
- URN defines an item's identity
- URL provides a method for finding it



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URI Generic Syntax

- ♦ RFC 3986
- ♦ Components
 - Scheme
 - Authority
 - Path
 - Query
 - Fragment



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2.2. Uniform Resource Locator (URL)

- ♦ created in 1990 by Tim Berners-Lee as part of the URI
- ♦ specifies where an identified resource is available and the mechanism for retrieving it
- ♦ separated by dots, and the file path, separated by slashes, as a coherent hierarchical path

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2.2. Uniform Resource Locator (2)

- ♦ Syntax
`resource_type://domain:port/filepathname?query_string#anchor`
- ♦ Example
`http://www.annex.com/southwest/museum.htm`
 - Means of access, HyperText Transfer Protocol
 - Internet Address (Web site)
 - Path (Directory or Folder)
 - Document

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2.3. Uniform Resource Name (URN)

- ♦ globally unique and persistent name of a resource on the Internet
- ♦ Syntax: `<URN> ::= "urn:" <NID> ":" <NSS>`
 - ♦ <NID> is the Namespace Identifier
 - ♦ <NSS> is the Namespace Specific String
- ♦ Example
 - ♦ `urn:isbn:0451450523`
 - ♦ The URN for "The Last Unicorn", identified by its book number.
 - ♦ `urn:isan:0000-0000-9E59-0000-O-0000-0000-2`
 - ♦ The URN for "Spider-Man (film)", identified by its audiovisual number.
 - ♦ ...

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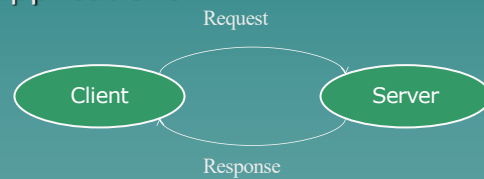
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Client Server Model

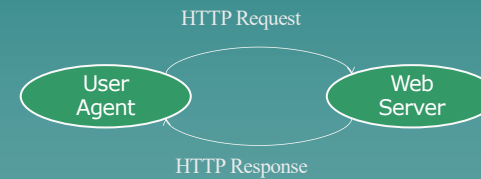
- ◆ A simple network model
- ◆ Used by various network applications



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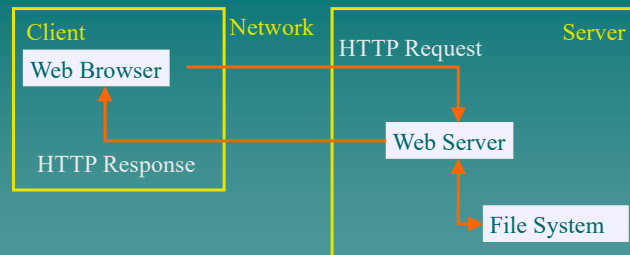
Client Server Model (Web)

- ◆ Client: User Agent
- ◆ Server: Web server



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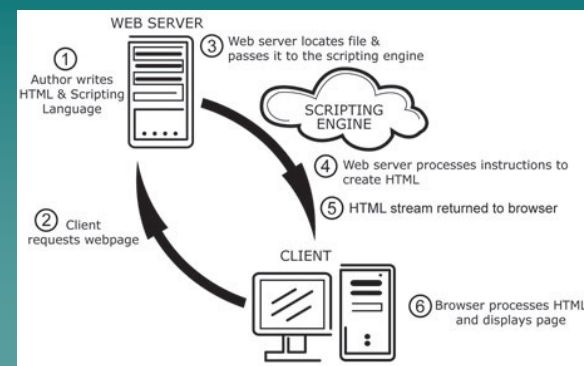
Web Application Evolution – Static



- ◆ Organizations want to make their information available to as many people in the world as possible
- ◆ This can be achieved by using the Web, delivering the information as static HTML pages

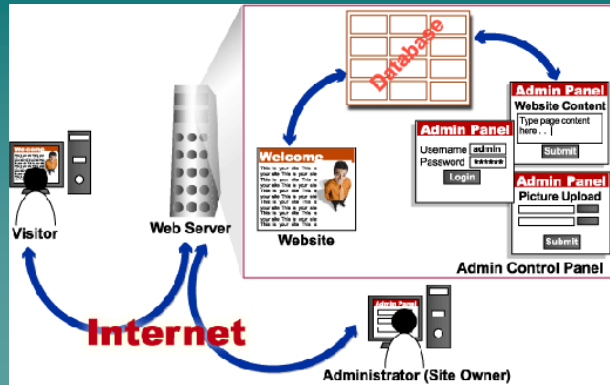
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Web Application Evolution – Dynamic



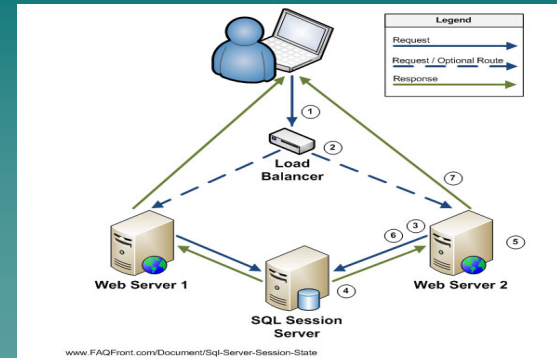
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Web Application – Dynamic



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More than one Web server?



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Question?



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