

Unit 1 : Overview of Web Fundamentals

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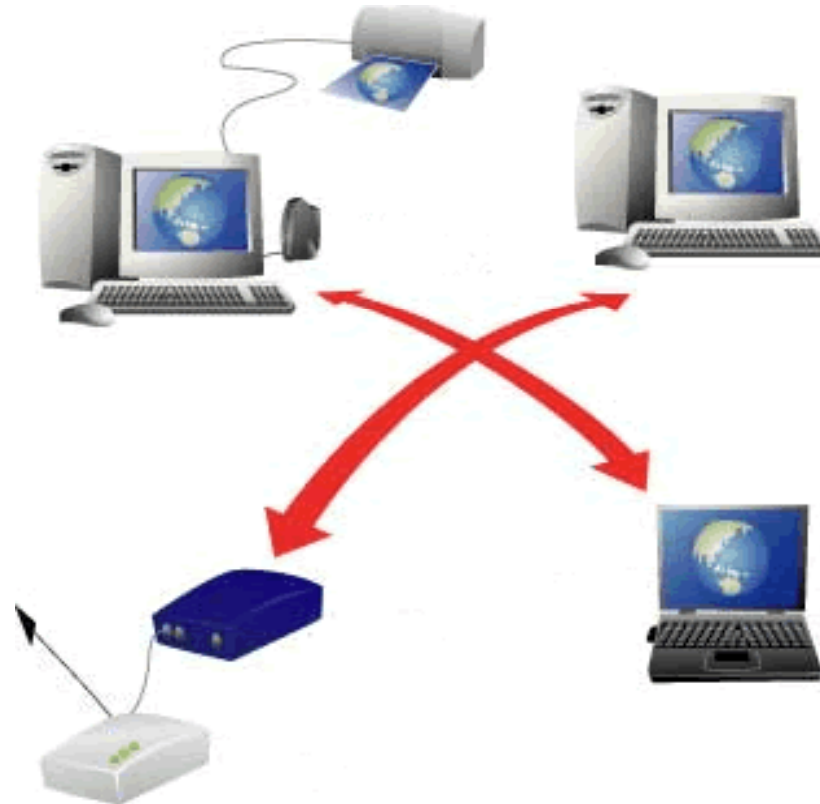
Topics

- Understand Internet.
- Understand World Wide Web.
 - Need for Web
 - HTTP
 - Web components
 - Client-server architecture
 - URL
 - Web standards



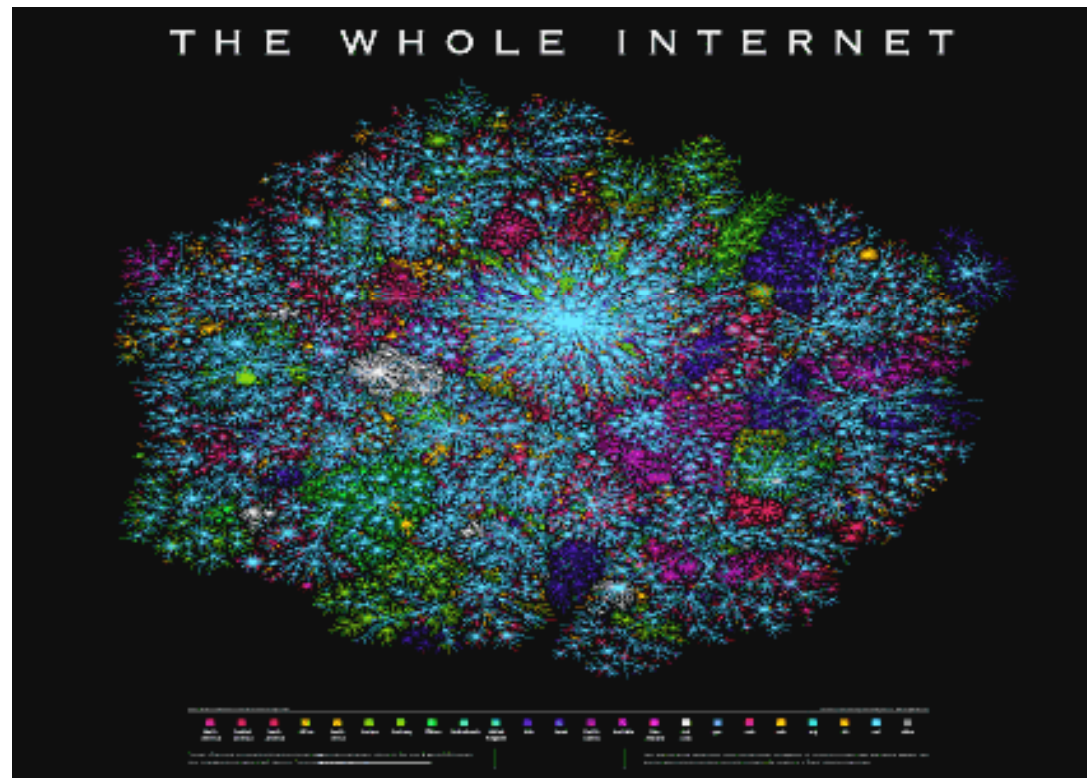
Network

- What is a network?
 - It consists of two or more computers that are linked in order to share information or resources.



Internet

- **What is internet?**
 - A computer network made up of thousands of networks worldwide.



Internet - Evolution

1967

- It began as U.S. Department of Defense (DoD) funded experiment to interconnect DoD funded research sites in US.
- It was called ARPANET named for DoD's Advanced Research Project Agency (ARPA).
- The ARPANET gave life to number of protocols.

1969

- First node of the ARPANET was installed at the University of California.
- Four nodes by the end of 1969.

1971

- Spanned the US continent.

1973

- Established connections with Europe.

Internet - Owner

Who owns the Internet?

Has no single owner, yet everyone owns (a portion of) the Internet.

Has no central operator, yet everyone operates (a portion of) the Internet.

However some central authority is required for the Internet to manage those things that can be managed centrally, such as addressing, naming, protocol development etc.



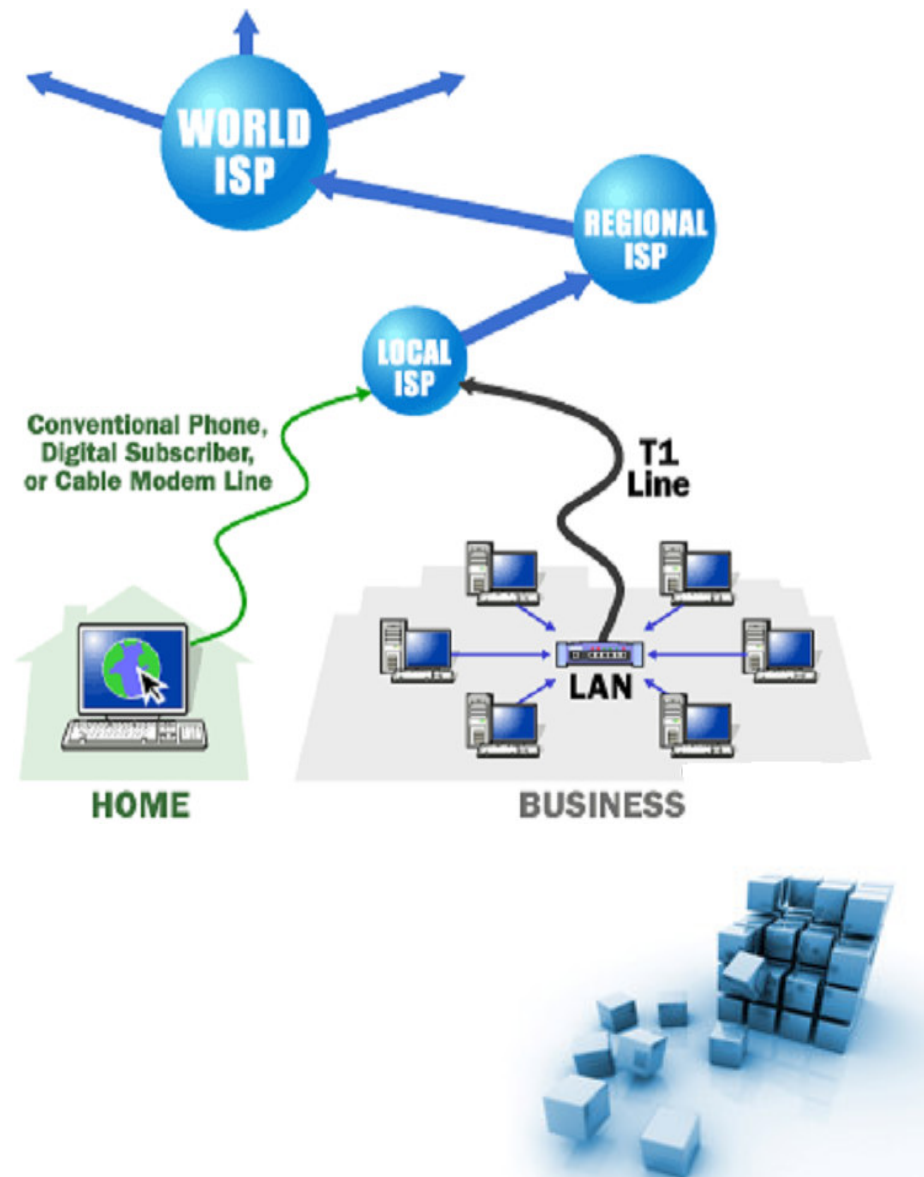
How does Internet work?

Every computer that is connected to the internet is part of a network.

A home computer may use a modem and dial to connect to an Internet Service Provider(ISP)

If part of LAN, the network in turn is connected to a ISP.

The ISP in turn is connected to various ISP's to be part of Internet.



World Wide Web - WWW

What is World Wide Web?

The World Wide Web(abbreviated as the Web or WWW) is a system of Internet servers that support hypertext to access several Internet protocols on a single interface.



World Wide Web

Who invented World Wide Web?

It was invented by “Tim Berners Lee”, when he was working in a physics laboratory called CERN in Switzerland.



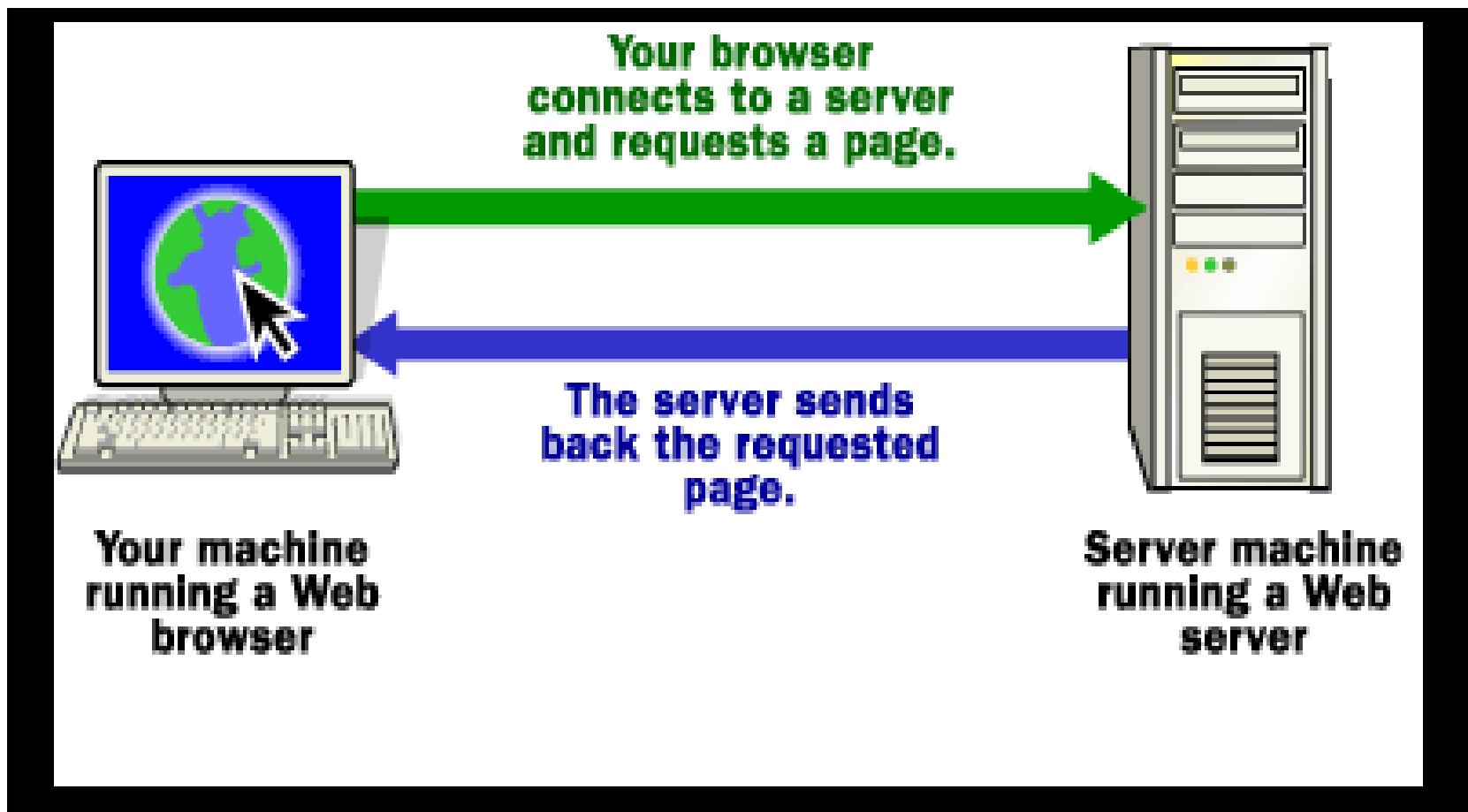
Need for World Wide Web

- Computers in the Internet run on different Operating Systems and use different softwares to store information.
- In order to share information across the computers over the Internet, a standard format of the information needs to be used and common rules to access the information.
- This led to the development of Web.



How does the Web work ?

Web is based on Client Server Architecture.



How does the Web Work ?

- Web is based on Client – Server Architecture.
- Clients are machines which request for services or information.
- Servers are machines which provide services or information on request from the clients.



Client Server Interaction

- HTTP

The client and the server exchange information using a protocol called HTTP, which is short for 'Hyper Text Transfer Protocol'

- HTML

The information sent by the server are HTML pages, which is short for 'Hyper Text Markup Language'



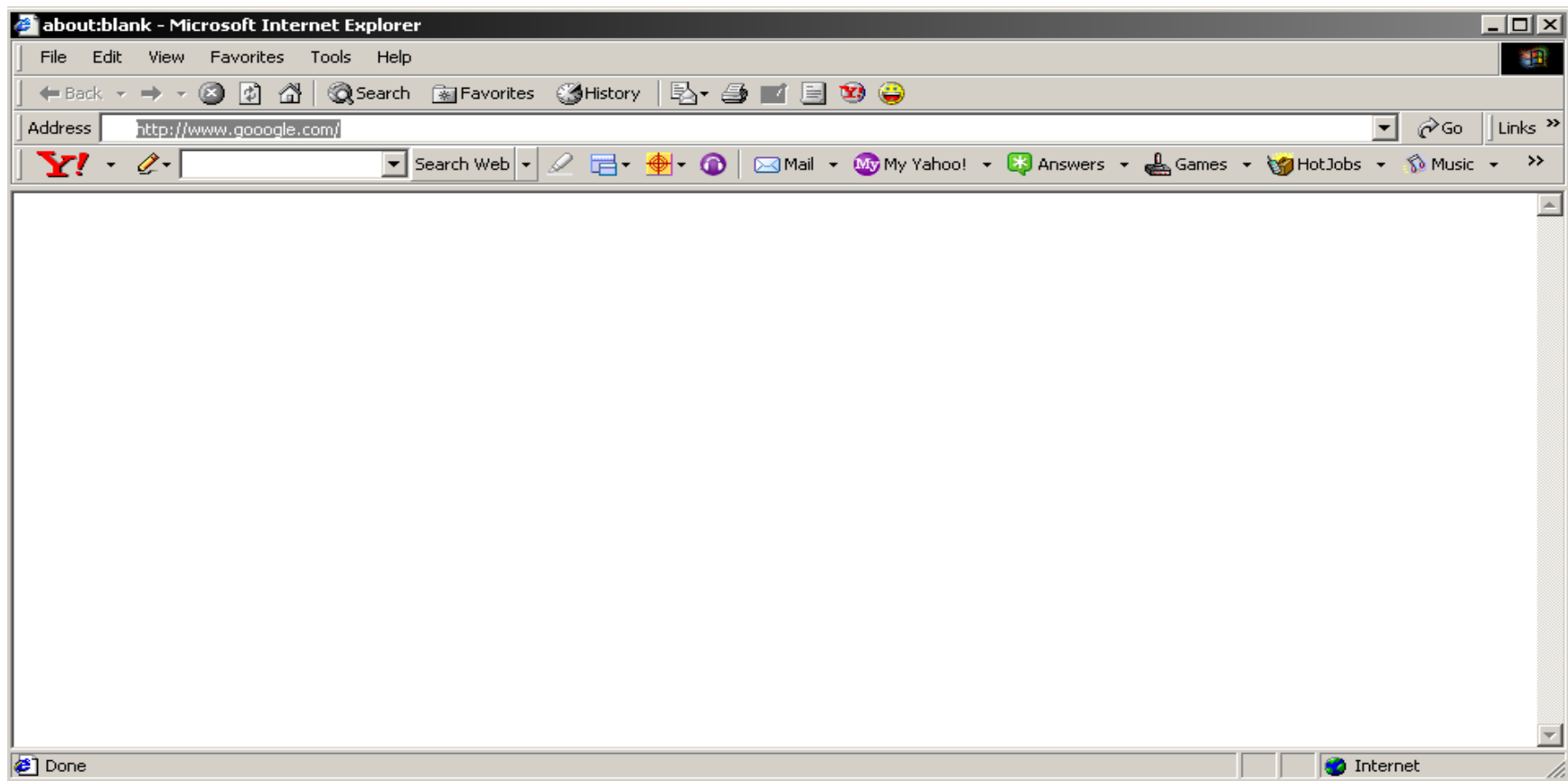
Web Components

- Web information is stored in documents called “Web Pages”.
- Web pages are text files stored on computers called “Web Servers”.
- Computers reading the Web pages are called “Web Clients”.
- Web clients view the pages with a program called a “Web Browser”.
- Popular browsers are : Internet Explorer, Mozilla etc.



How does the browser fetch pages?

When you type a URL(say <http://www.google.com>) into a browser, the following steps occur,



How does the browser fetch pages?

- **Step 1**

The browser breaks the URL into three parts:

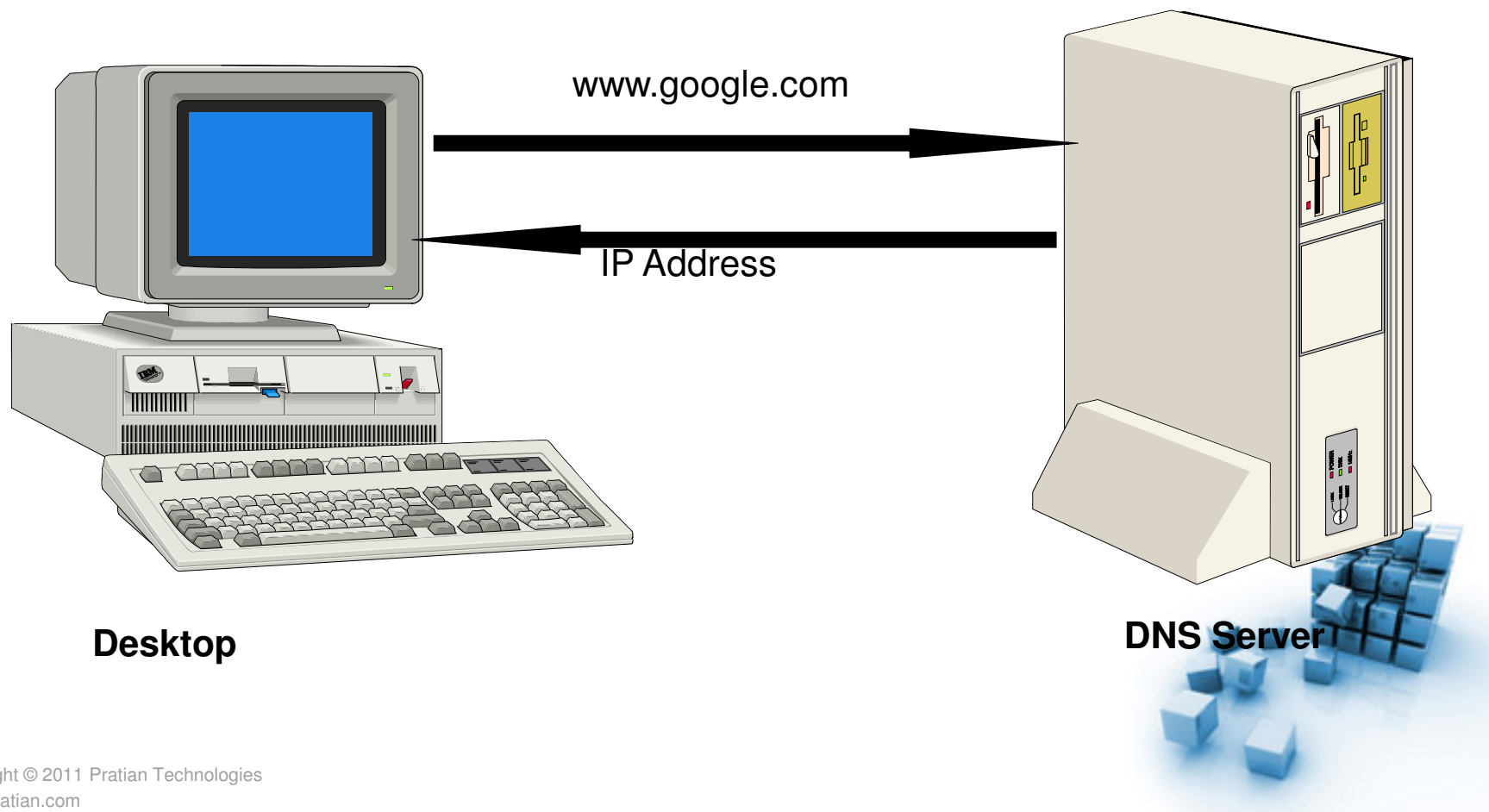
1. The protocol("http")
2. The server name ("www.google.com")
3. The file name("<if any>")



How does the browser fetch pages?

- **Step 2**

The browser communicates with a Domain Name Server(DNS) to translate the server name, “www.google.com” into an IP address, which it uses to connect to that server machine.



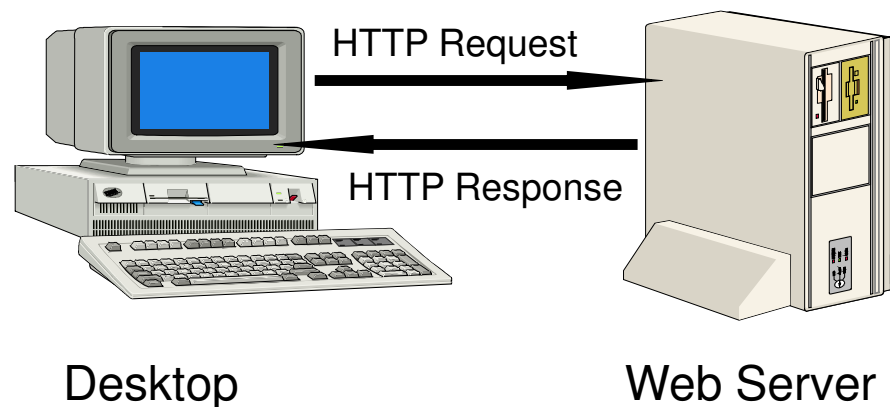
How does the browser fetch pages?

- **Step 3**

The browser then forms a connection to the Web server at that IP address.

- **Step 4**

Following the HTTP protocol, the browser sends a GET request to the server for the file "<http://www.google.com/>"



- **Step 5**

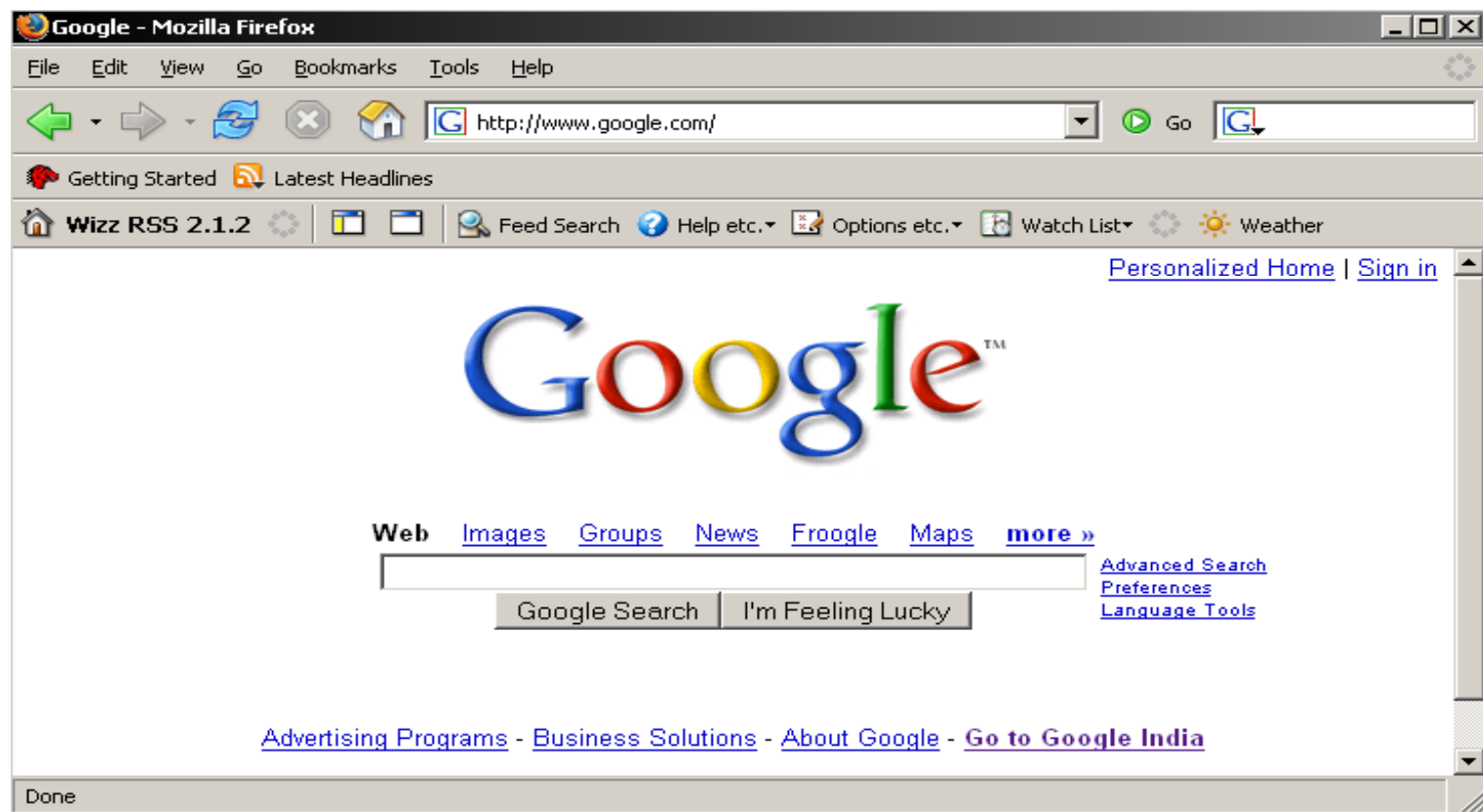
The Server sends the HTML text for the Web page to the browser.



How does the browser fetch pages?

- **Step 6**

The browser reads the HTML tags and formats the page onto your screen.



How does the browser display pages?

- All Web pages are ordinary text files.
- All Web pages contain display instructions.
- The browser displays the page by reading these instructions.
- The most common display instructions are called HTML tags.



Who makes the Web standards?

- The Web standard are not made up by Netscape or Microsoft.
- The rule making body of the Web is the W3C.
- W3C stands for World Wide Web Consortium.
- W3C puts together specifications for the Web standards.
- The most essential Web standards are HTML,CSS and XML.



Web Structure

- There is no right or wrong way to display the structure of the Web.
- But there is one fundamental difference between Internet and Web structures.
- Internet structure is controlled by wiring.
- Web structure is controlled by hyperlinks.



Question time

Please try to limit the questions to the topics discussed during the session. Thank you.

