Introduction to Internet

What is the Internet?

- Network: a group of connected computers/devices
- internet: a network of networks
  - Internet: the world wide web

Internet address

- Used to identify a computer connected to the Internet.
- Every address must be unique, since the computer represented by that address is unique to the Internet.
- The Internet Corporation for Assigned Names and Numbers (ICANN) is an internationally organized, non-profit corporation that has responsibility for Internet Protocol (IP) address space allocation, protocol identifier assignment.

Internet address

- Internet addresses can be represented in terms of textual domain names, such as www.yahoo.com and mapped to corresponding IP addresses.
- Ex: The IP for www.yahoo .com is 205.132.48.237.

Protocol

- A *protocol* is a set of rules for communicating across the Internet.
- Both parties know and follow the rules for sending and receiving information, making meaningful communication possible.

Ex;

Hypertext Transfer Protocol (HTTP)

File Transfer Protocol (FTP)

Telnet

HTTP

- This protocol, the backbone of the World Wide Web, enables users to send and receive information from Internet servers in the form of documents, or *pages,* written using the Hypertext Markup Language (HTML).
- The user who receives the document, often called the *client*, can then use a *browser* or other form of software that recognizes the HTML language to view the contents of the document.

WWW (World Wide Web)

- An information system that brings data together from many of the other Internet services under one set of protocols.
- W3 Consortium was created for continuing to develop the standards. The consortium put together a set of protocols for the World Wide Web.

Introduction to W3C

What it W3C?

- W3C Stands for the *World Wide Web Consortium*
- W3C was created in October 1994
- W3C was established by Tim Berners-Lee
- W3C has many members who work towards standardisation of the Web
- W3C Standards are called W3C Recommendations

W3C Recommendations

- Each W3C Recommendation is developed by a working group consisting of members and invited experts.
- The group obtains its input from companies and other organizations, and creates a Working Draft and finally a Proposed Recommendation.
- The Proposed Recommendation is usually submitted to the W3C membership and Director
- On formal approval, it becomes a W3C Recommendation.

Web Paradigms

- Broadly classified into two;
  - Classic Web Paradigm-Synchronous
  - Asynchronous

Synchronous Web Paradigm

- Client browser requests data from the server
- Each time the client wants an update, it makes a request
- Also known as “pull”

Limitations of Synchronous Web Paradigm

- There are a growing class of applications that need visualisation of real-time data
  - stock prices from trading sites

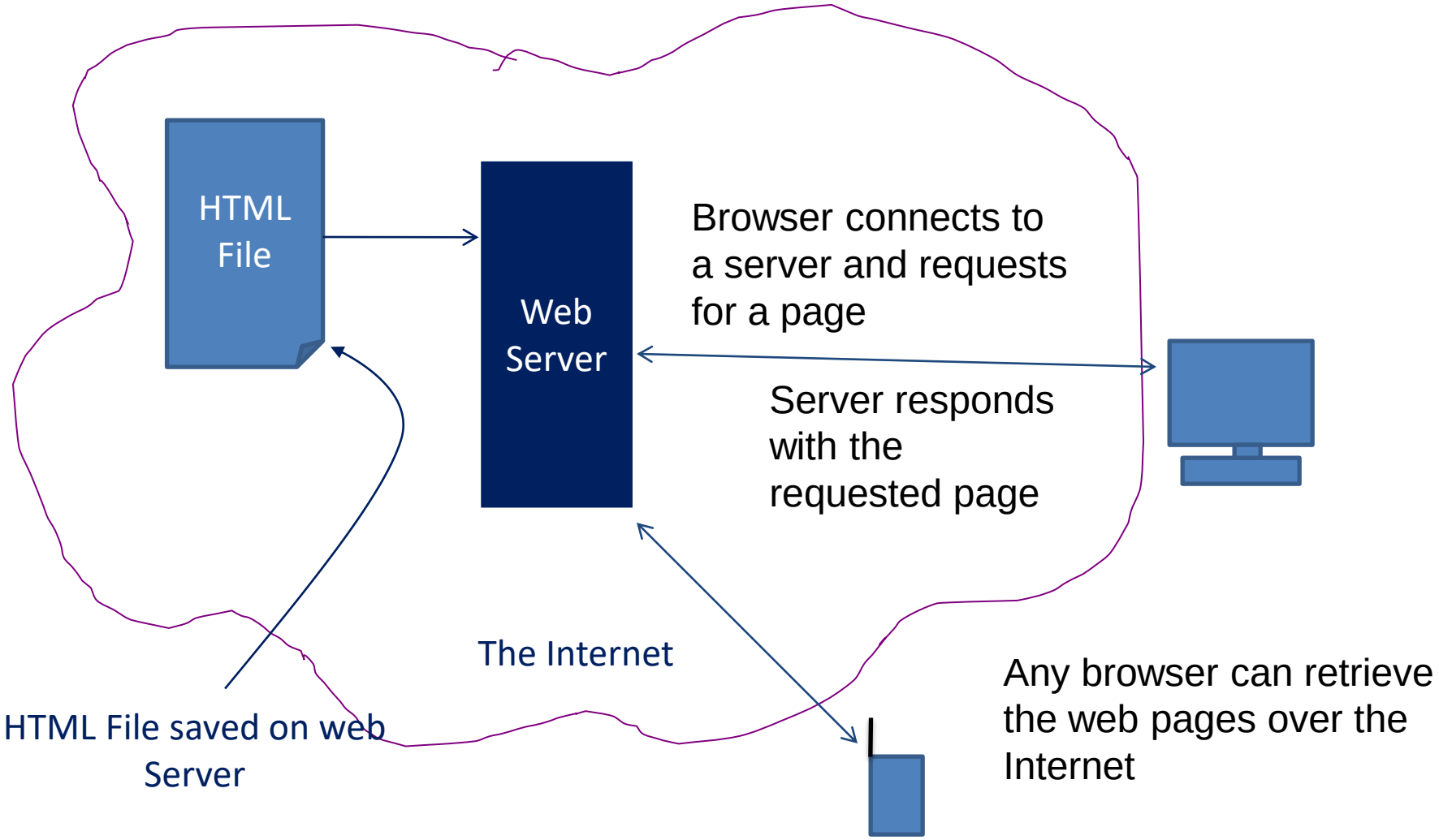
A solution…

- A polling technique
- Problem only partially resolved
  - The update frequency cannot be high. A synchronous paradigm (request/response) makes it impossible to receive data in real time.
  - The occupied network bandwidth is high, because with each response a whole page is transferred, instead of only the changed data.
  - The impact on Web server resources is huge, because the server needs to sustain a high load of page requests even though users are inactive.

Push - Web Paradigm

- **To guarantee a very low latency between the generation of fresh data and** its presentation to the end user within a common browser, a dedicated solution is necessary, namely **Push Technology. This term was coined in 1996**.
- In the push (or **streaming) model, the client receives** updates in an asynchronous manner at the server's discretion, in the form of a continuous data flow.

Basic Process



Behind the Scene!!!

- The browser breaks the URL into three parts:
  - The protocol ("http")
  - The server name ("www.rediff.com")
  - The file name (“index.html")
- The browser communicates with a name server to translate the server name "www.rediff.com" into an IP Address, which it uses to connect to the server machine.
- The browser then establishes a connection with the server at that IP address on port 80.

Behind the Scene!!!

- Following the HTTP protocol, the browser sends a request to the server, asking for the file *http://www.rediff.com/index.html*
- The server then sends the HTML text for the Web page to the browser.
- The browser reads the HTML tags, formats the page and displays it onto your screen.

HTML

(Hyper Text Markup Language)

What is HTML?

- HTML is a format that tells a client/computer how to display a web page.
- The documents themselves are plain text files (ASCII) with special "tags" or codes that a web browser knows how to interpret and display on your screen.

What are HTML tags?

- When a web browser displays a page, it reads from a plain text file, and looks for special codes or "tags" that are marked by the < and > signs.
- The general format for a HTML tag is:

  <tag_name>string of text</tag_name>
- As an example, the title for this section uses a **header** tag:

  <h3>What are HTML tags?</h3>
- This tag tells a web browser to display the text **What are HTML tags?** in the style of header level 3

Steps for creating HTML file.

- Launch text editor program.
- Write the HTML code in the file

```
<html>
<head>
<title>Hello world</title>
</head>
<!- Hello world example -->
<body>
Hello World!!!!!!
</body>
</html>
```

- Save the document as a file called “hello.html”

Start with a title

Every HTML document needs a title. Here is what you need to type:

```
<title>My first HTML document</title>
```

The Body tag

```
<body> . . .. </body>
```

This is the tag which holds all the controls and data.

Add headings and paragraphs

```
<h1>An important heading</h1>
```

h1,h2,h3,h4,h5,h6 are header tag names

Adding a bit of emphasis

This is a really interesting topic!

Adding images

```
<img src="peter.jpg" width="200"
  height="150">
<img src="peter.jpg" width="200"
  height="150" alt="My friend
  Peter">
```

The alt attribute is used to give the short description, for those who can't see the image, can read in its absence

Adding links to other pages

This a link to

```
<a href="peter.html">Peter's
   page</a>
```

turn an image into a hypertext link

```
<a href="home.html"><img
   src="logo.gif" alt="home
   page"></a>
```

Adding lists

a) unordered list.

```
<ul>
   <li> the first list item</li>
```

b) ordered list.

```
<ol type=1>          (type=1 or a or i)
  <li> the first list item</li>
  <li> the second list item</li>
</ol>
```

How to force line breaks

```
The Willows<br> 21 Runnymede
Avenue<br> Morton-in-the-marsh<br>
Oxfordshire OX27 3BQ
```

- **How to use entities for special characters**

` `	Blank space
`&copy;`	©
`&reg;`	®
`&#8482;`	™

Clickable regions within images

```
<p align="center">
<img src="pages.gif" width="384"
  height="245" alt="site map"
  usemap="#sitemap" border="0">
<map name="sitemap">
  <area shape="circle" coords="186,44,45"
     href="Overview.html" alt="Getting
  Started">
  <area shape="circle" coords="42,171,45"
     href="Style.html" alt="A Touch of
  Style">
  <area shape="circle" coords="186,171,45"
     alt="Web Page Design">
  <area shape="circle" coords="318,173,45"
     href="Advanced.html" alt="Advanced
  HTML">
</map> </p>
```

Tables

- Tables are used for display information as well as for layout.

```
<table border="1">
<tr><th>Year</th><th>Sales</th></tr>
<tr><td>2000</td><td>$18M</td></tr>
<tr><td>2001</td><td>$25M</td></tr>
<tr><td>2002</td><td>$36M</td></tr>
</table>
```

```
<table border="1" cellpadding="10">
<table border="1" cellpadding="10"
  cellspacing="10">
<table border="1" cellpadding="10"
  width="80%">
```

Creating Division or Layer

```
<div style="position: absolute; width: 100px;
  height: 100px; z-index: 1; left: 341px; top:
  219px" id="layer1">
   </div>
```

Some other formatting tags

`<b> </b>`	- makes the text bold
`<i> </i>`	- makes the text italics
`<p> </p>`	- creates a paragraph
`<center> </center>`	-aligns the text center
`<HR>`	- draws a horizontal line
`<font> </font>`	- specifies type and size of font face="Times New Roma" size=29

Creating Combo Box and List Box

Combo Box(only one selection at a time)

```
<select name="country">
  <option value="India"> India </option>
  <option value="China"> China </option>
</select>
```

List Box(one/many selection allowed)

```
<select name="country" multiple>
  <option value="India"> India </option>
  <option value="China" selected> China
  </option>
</select>
```

Forms & Inputs

- Form tag is used to create controls on the page

```
<form>
  <input type="text" name="txtuser">
  <input type="password"
  name="txtpass">
  <input type="submit" value="Login">
</form>
```

Some other input types;

button, checkbox, hidden, radio, reset

Form tag attributes

method- specifies the way how the data is to be sent to the server (request from client to server)

most important values for method attribute are: get, post

Other values are- delete, options, trace, put, head

action – specifies the file to be invoked on submitting the form to the server

Tags to embed objects

- Objects like Microsoft ActiveX control Java's applet can be embedded in a web page.
- This can be done through <object> tag.
- The next slide is an example of embedding ActiveX calendar control.

```
<object classid="clsid:8E27C92B-1264-101C-8A2F-040224009C02" id="Calendar1" width="234" height="170">
 <param name="_Version" value="524288">
 <param name="_ExtentX" value="7620">
 <param name="_ExtentY" value="5080">
 <param name="_StockProps" value="1">
 <param name="BackColor" value="-2147483633">
 <param name="Year" value="2007">
 <param name="Month" value="11"> <param name="Day" value="6">
 <param name="DayLength" value="1">  <param name="MonthLength" value="1">
 <param name="DayFontColor" value="0">  <param name="FirstDay" value="7">
 <param name="GridCellEffect" value="1">
 <param name="GridFontColor" value="10485760">
 <param name="GridLinesColor" value="-2147483632">
 <param name="ShowDateSelectors" value="-1">
 <param name="ShowDays" value="-1">
```

```
<param name="ShowHorizontalGrid" value="-1">
 <param name="ShowTitle" value="-1">
 <param name="ShowVerticalGrid" value="-1">
 <param name="TitleFontColor" value="10485760">
 <param name="ValueIsNull" value="0">
 </object>
```

Inserting Applets

```
<applet width="128" height="128"
  code="abc.class">
   <param name="param1" value="obj1"
  valuetype="object">
   <param name="param2"
  value="hello">
   <param name="param3" value="Ref1"
  valuetype="ref">
   Forget it <!- Message if java is
  not supported->
</applet>
```

Creating Frames

Test1.html

```
<frameset cols=30%,30%,* border=0>
  <frame src="Test2.html"
  name="frm1" scrolling=no>
  <frame name="frm2">
  <frameset rows=10%,*>
     <frame name="frm3">
     <frame name="frm4">
<frameset>
//creating frames within frameset
```

```
<OBJECT codetype="application/java"
classid="abc.class " width="128"
height="128">
   <param name="param1" value="obj1"
   valuetype="object">
   <param name="param2" value="hello">
   <param name="param3" value="Ref1"
   valuetype="ref">
   Forget it <!- Message if java is
   not supported->
   Java applet that plays a welcoming
   sound.
</OBJECT>
```

- Test2.html

```
<html>
   <body>
      <a href="test3.html"
target="frm2">        test3 </a>
   </body>
</html>
```

- Test3.html

```
<html>
   <body>Hello</body>
</html>
```