A J A X

Asynchronous Javascript And XML

www.rohitsinha.com

WHAT IS AJAX ?

- Original Name: XMLHttpRequest
- Started up by: Microsoft shipped IE5
- Now Almost all browsers supports it
- Jesse James Garrett named it AJAX in an essay (http://www.adaptivepath.com/ideas/essays/archives/000385.php)
- No reloads required to get/send data to server
- You can interact with the website while it is requesting data from server

WHO IS USING AJAX ?

flickr

Google maps

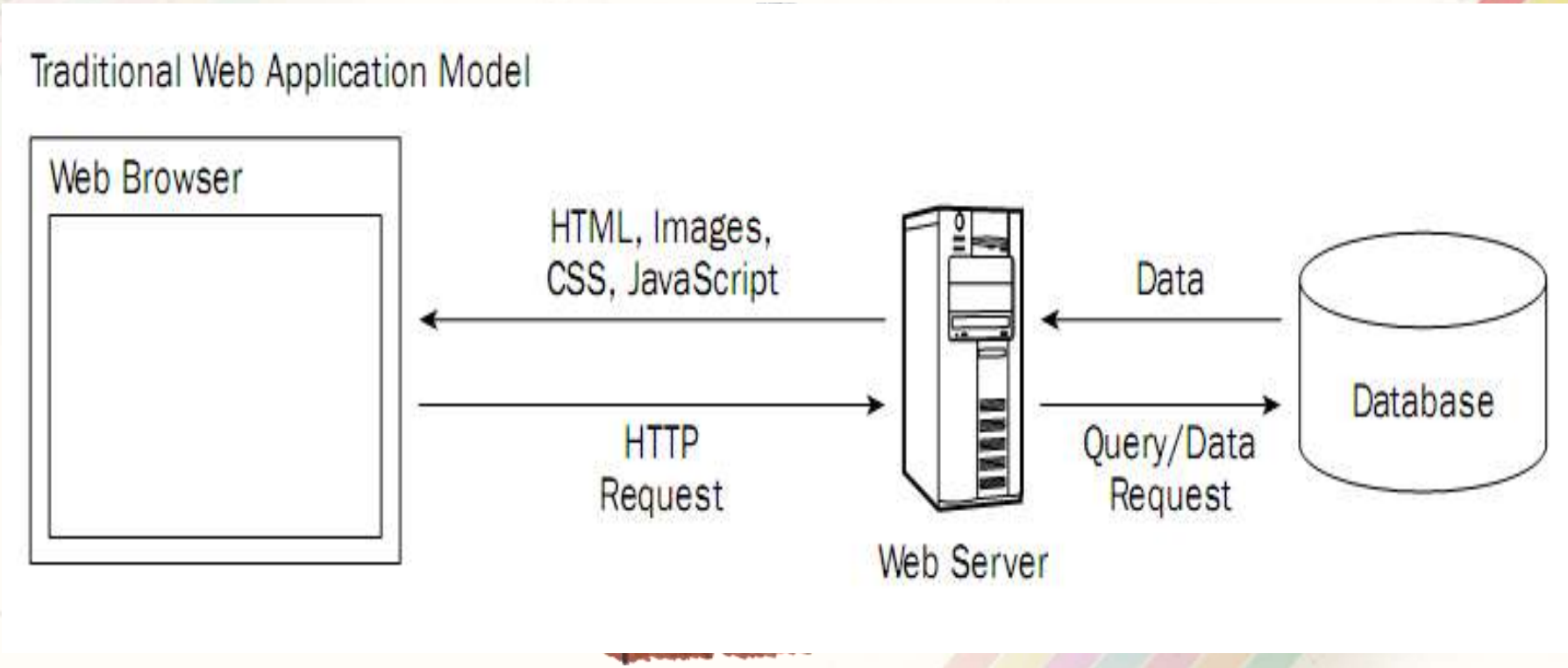
Google Suggest LABS

Still Not Impressed ?

Some More Beauties !!!

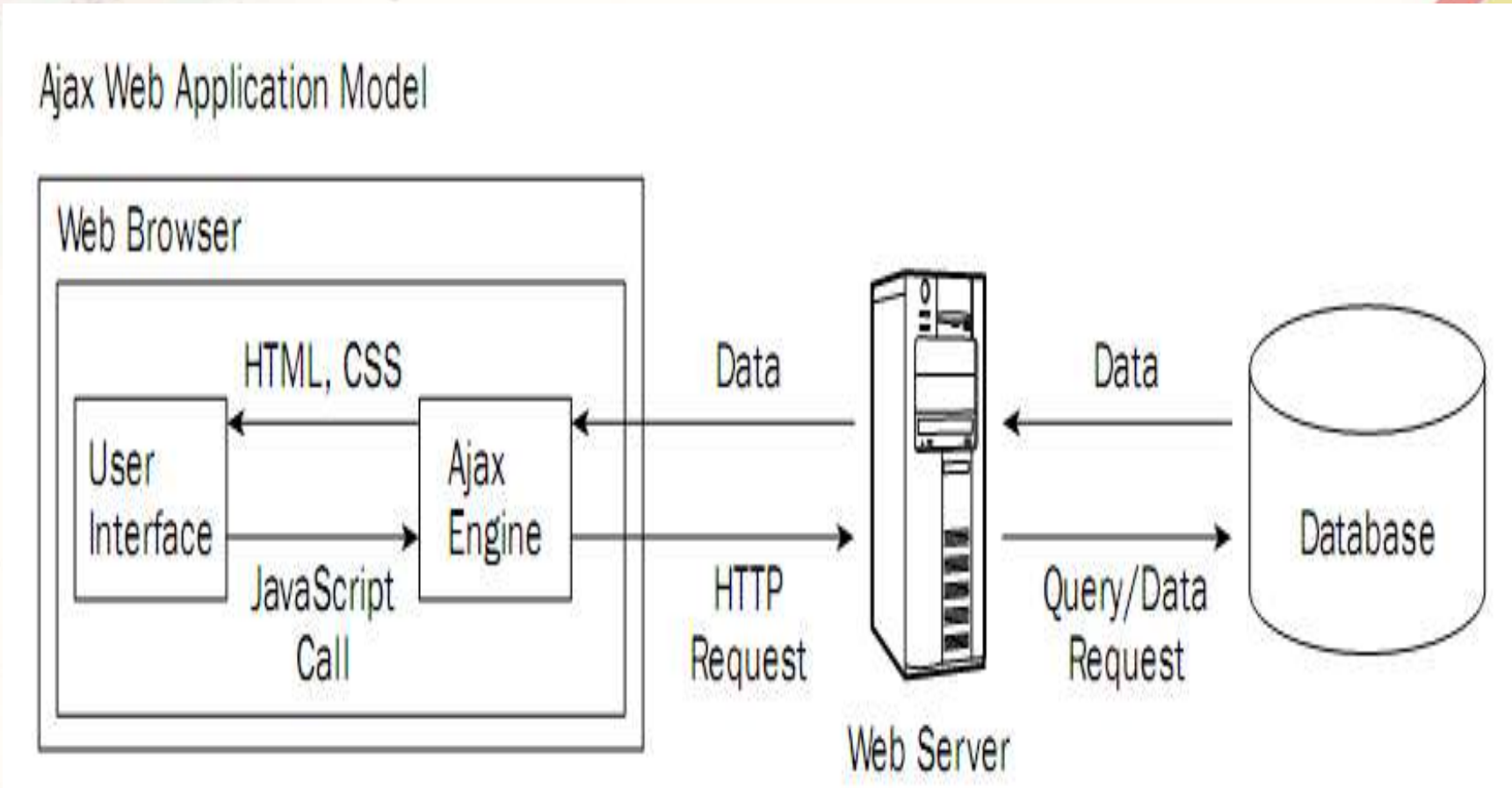
1. **Backbase’s RSS Reader. Only a demo, so you can’t add your own feeds.**
2. **Backpack. To do list organizer and simple project management application. Includes email and mobile reminders.**
3. **Writely. Online word processor. Google bought it and now its Google Docs.**
4. **Amazon Zuggest. Francis Shanahan’s version of Google Suggest–but for Amazon.**
5. **TimeTracker. Personal time management tool.**
6. **Del.icio.us Director. Rich UI for managing your del.icio.us links.**
7. **Protopage. Another twist on an information portal.**

Traditional Approach



AJAX Approach

Server response back to browser which is displayed



something from server

Technologies Behind AJAX

Garrett's article mentions several technologies that he sees as parts of an Ajax solution. These are:

- **HTML/XHTML:** Primary content representation languages
- **CSS:** Provides stylistic formatting to XHTML
- **XML:** Data exchange format
- **XSLT:** Transforms XML into XHTML (styled by CSS)
- **XMLHttp:** Primary communication broker
- **JavaScript:** Scripting language used to program an Ajax engine

- **HTML/XHTML**
- **DOM**
- **JAVASCRIPT**

The other technologies in the list are helpful in fine-tuning an Ajax solution, but
they aren't necessary.

AJAX PRINCIPLES

Michael Mahemoff (www.mahemoff.com), a software developer and usability expert, identified several key principles of good Ajax applications that are worth repeating:

- **Minimal Traffic**
- **No Surprises**
- **Established Conventions**
- **No Distraction**
- **Accessibility**
- **Avoid Entire Page Download**
- **User First**

USABILITY

Why Should I Use Ajax?

- **Partial Page Updating**
- **Invisible Data Retrieval**
- **Constant Updating**
- **Smooth Interfaces**
- **Simplicity & Rich Functionality**
- **Drag & Drop**

Document Object Model

HTTP Request Response Fundas

Code	Description
200 OK	This response code is returned if the document or file in question is found and served correctly.
304 Not Modified	This response code is returned if a browser has indicated that it has a local, cached copy, and the server's copy has not changed from this cached copy.
401 Unauthorized	This response code is generated if the request in question requires authorization to access the requested document.
403 Forbidden	This response code is returned if the requested document does not have proper permissions to be accessed by the requestor.
404 Not Found	This response code is sent back if the file that is attempting to be accessed could not be found (e.g., if it doesn't exist).
500 Internal Server Error	This code will be returned if the server that is being contacted has a problem.
503 Service Unavailable	This response code is generated if the server is too overwhelmed to handle the request.

XMLHttpRequest

XMLHttpRequest is an object

- ✓ Properties
- ✓ Methods

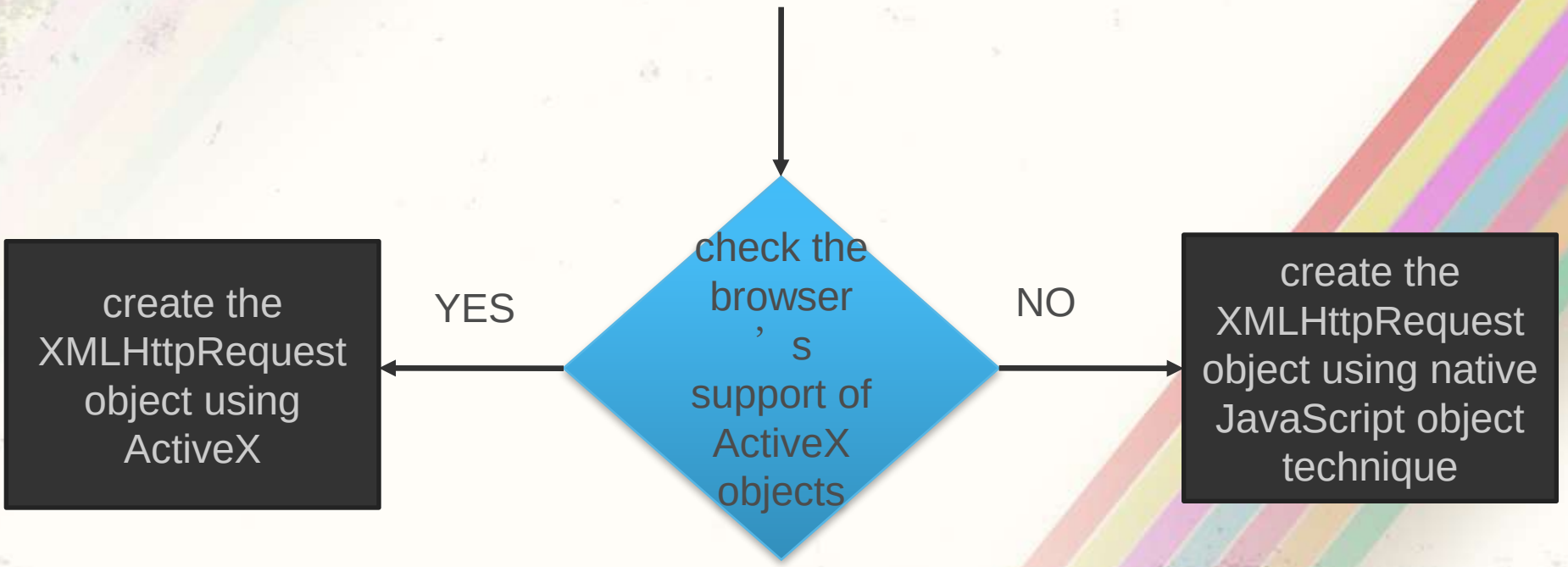
XMLHttpRequest Methods

Method	Description
abort()	Cancels the current request
getAllResponseHeaders()	Returns all HTTP headers as a String type variable
getResponseHeader()	Returns the value of the HTTP header specified in the method
open()	Specifies the different attributes necessary to make a connection to the server; allows you to make selections such as GET or POST (more on that later), whether to connect asynchronously, and which URL to connect to
setRequestHeader()	Adds a label/value pair to the header when sent
send()	Sends the current request

XMLHttpRequest Properties

Property	Description
onreadystatechange	Used as an event handler for events that trigger upon state changes
readyState	Contains the current state of the object (0: uninitialized, 1: loading, 2: loaded, 3: interactive, 4: complete)
responseText	Returns the response in string format
responseXML	Returns the response in proper XML format
status	Returns the status of the request in numerical format (regular page errors are returned, such as the number 404, which refers to a not found error)
statusText	Returns the status of the request, but in string format (e.g., a 404 error would return the string Not Found)

SUPPORT FOR XMLHttpRequest OBJECT



CREATING XMLHttpRequest Object

```
var xhr = false;

function createXMLHttpRequest()
{
        if (window.XMLHttpRequest)
        {
                xhr = new XMLHttpRequest();
        }
        else if (window.ActiveXObject)
        {
                try
                {
                        xhr = new ActiveXObject("Microsoft.XMLHTTP");
                }
                catch (e) { }
        }
```

REQUESTING THE SERVER

```
        If(xhr)
        {
                xhr.onreadystatechange = showFunction;
                xhr.open( “GET” , “filename” , true);
                xhr.send(null);
        }
        else
        {

        document.getElementById( “AjaxUpdateArea” ).innerHTML =
                        “Sorry unable to create XMLHttpRequest” ;
        }
}
```

RESPONSE FROM SERVER

```
function showFunction()
{
    if(xhr.readyState == 4)
    {
        if(xhr.status == 200)
        {
            var outMsg = xhr.responseText;
        }
        else
        {
            outMsg = "Unable to get response from server";
        }
        document.getElementById("AjaxUpdateArea").innerHTML =
    outMsg;
    }
}
```

SOME CODING ☺

WHY NOT AJAX ?

- Poor Responsiveness
- Breaks the Back Button on Your Browser
- Breaking Bookmarks and Blocking Search Engine Indexes
- Strain on the Browser

Where To Go From Here

Sites:

- **100 Ajax Tutorials and Resources**
- **126 Ajax Tutorials And Resources To Help You Learn And Use Ajax**
- **Ajaxian**
- ***YUI Library* – *Yahoo! User Interface Library***

Books:

- **Ajax in action**
- **Ajax Hacks**
- **Head Rush Ajax**
- **Foundation Of Ajax**
- **Apress Beginning AJAX with PHP From Novice to Professional**

Thank You

QUERIES

Refrences:

- Beginning Ajax (Programmer to Programmer)
- Wrox Professional Ajax 2nd Ed
- Foundations Of Ajax
- Head First Ajax
- Head Rush Ajax
- Apress Beginning AJAX with PHP From Novice to Professional
- Ajax in Action
- Lynda – Ajax Essential Training Videos
- Ajax Crash Course By SitePoint
- www.ajaxpatterns.org
- www.ajaxmatters.com
- www.learn-ajax-tutorial.com
- www.ajaxwith.com