



## Asynchronous JavaScript and XML



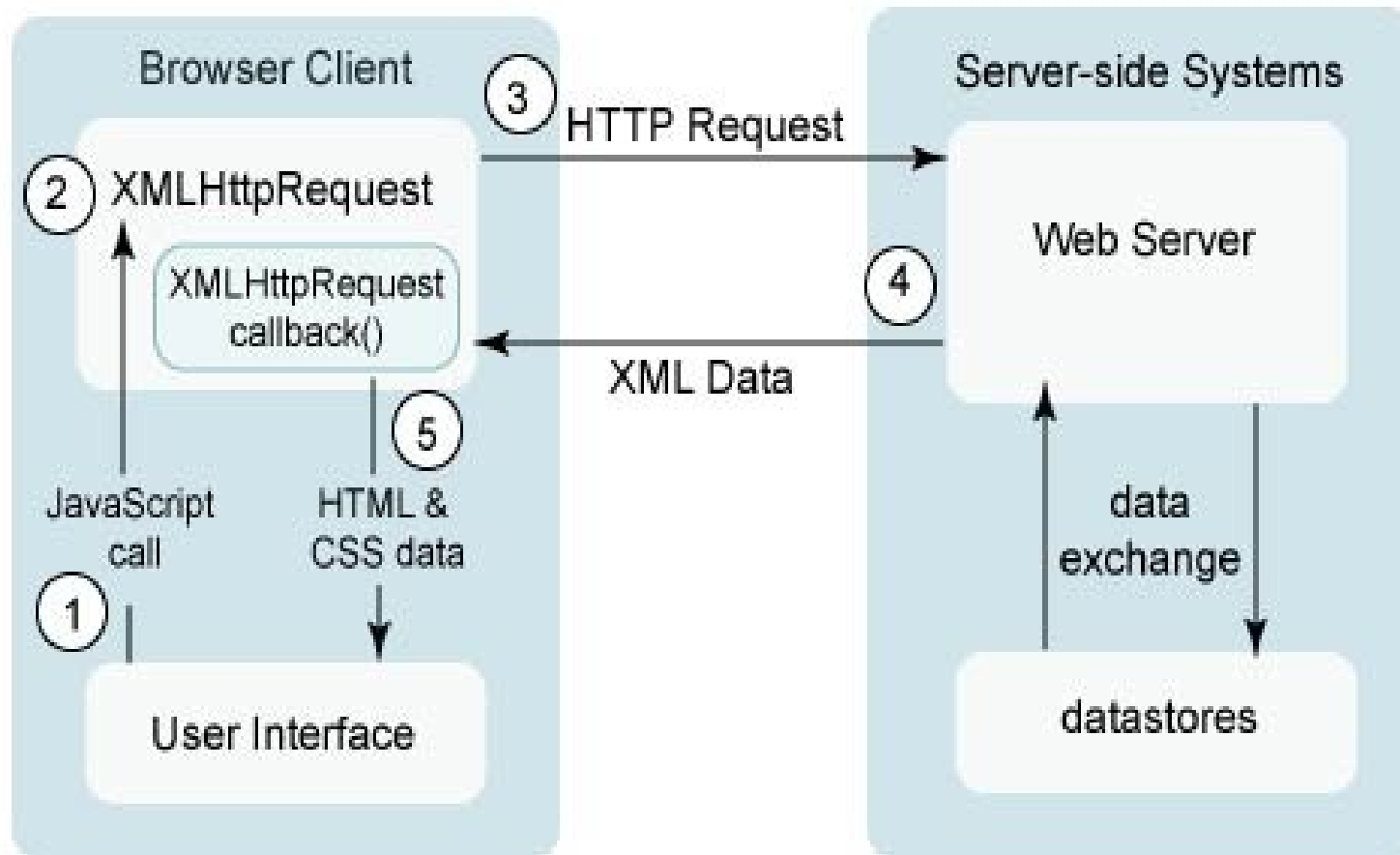
# What is Ajax?

- Ajax can help increase the speed and usability of an application's web pages **by updating only part of the page at a time, rather than requiring the entire page to be reloaded** after a user-initiated change.
- Using Ajax, the pages of your application can exchange small amounts of data with the server without going through a form submit.
- **AJAX is the art of exchanging data with the server and updating part of web pages- without reloading the whole page asynchronously**

# The Ajax Technique

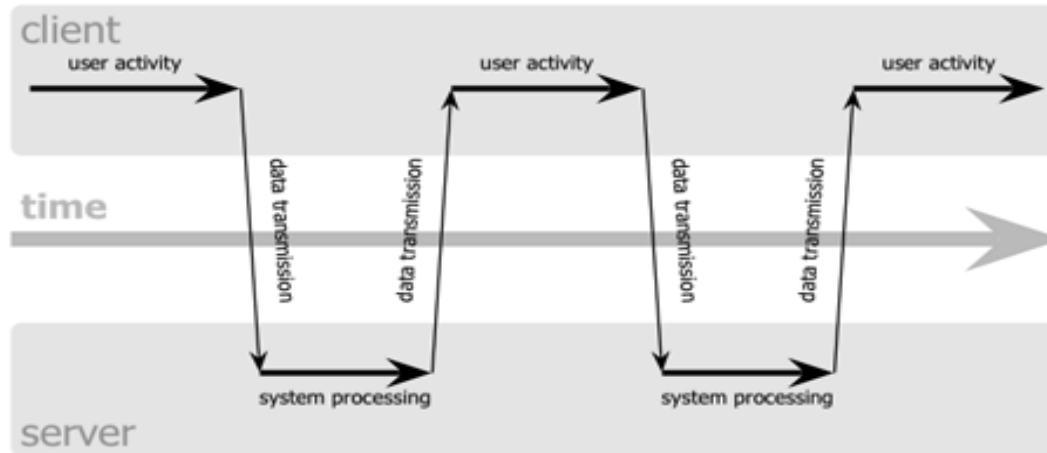
- ▶ The Ajax technique accomplishes this by using the following technologies:
  - ▶ **JavaScript** that allows for interaction with the browser and responding to events.
  - ▶ **DOM** for accessing and manipulating the structure of the HTML of the page.
  - ▶ **XML** which represents the data passed between the server and client.
  - ▶ An **XMLHttpRequest** object for asynchronously exchanging the XML data between the client and the server.

# AJAX Request



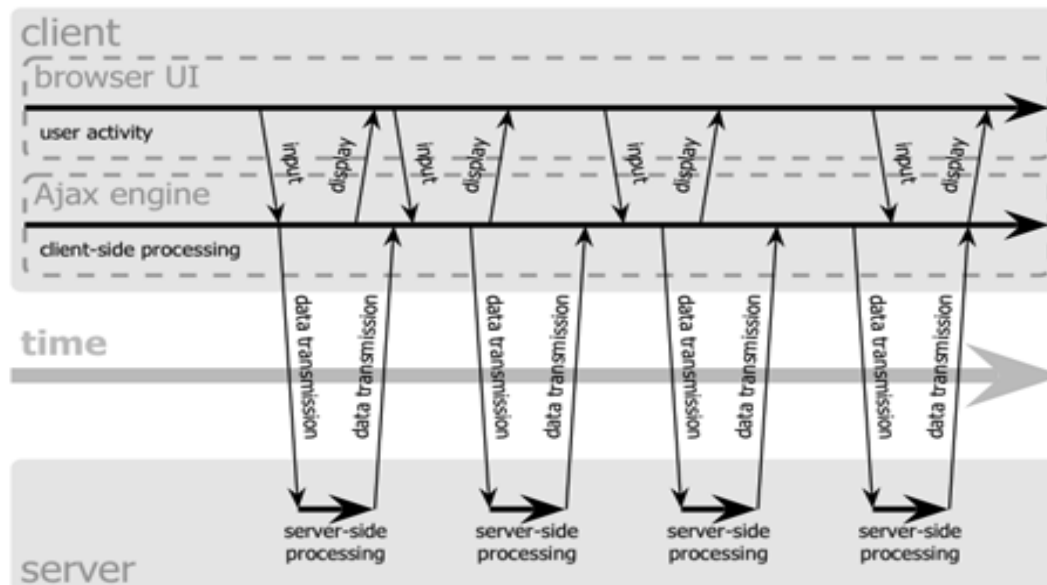
# Interrupted and Uninterrupted Operations

classic web application model (synchronous)



**Interrupted** user operation while the data is being fetched

Ajax web application model (asynchronous)



**Uninterrupted** user operation while data is being fetched

# Steps

- **JavaScript**
  - Define an object for sending HTTP requests
  - Initiate request
    - Get request object
    - Designate a request handler function
      - Supply as onreadystatechange attribute of request
    - Initiate a GET or POST request to a JSP page
    - Send data
  - Handle response
    - Wait for readyState of 4 and HTTP status of 200
    - Extract return text with responseText or responseXML
    - Do something with result
- **HTML**
  - Loads JavaScript from centralized directory
  - Designates control that initiates request
  - Gives ids to input elements that will be read by script

# Defining a Request Object

```
var ajaxObject=null;
```

```
if (window.XMLHttpRequest)
```

```
    ajaxObject=new XMLHttpRequest();
```

```
else if(window.ActiveXObject) /*ie 6 and 7*/
```

```
    ajaxObject=new ActiveXObject("Microsoft.XMLHTTP");
```

```
if(ajaxObject!=null){
```

```
    /*Open an GET request for resource url asynch.*/
```

```
    ajaxObject.open("GET",url,true);
```

```
    ajaxObject.send();
```

```
}
```

```
else{
```

```
    alert("Not having suitable browser ...");
```

```
}
```

# Handle Response

```
ajaxObject.onreadystatechange=function()  
{  
    if(ajaxObject.readyState==4 && ajaxObject.status==200){  
        document.getElementById(id).innerHTML=ajaxObject.responseText;  
    }  
};
```