

Ajax!

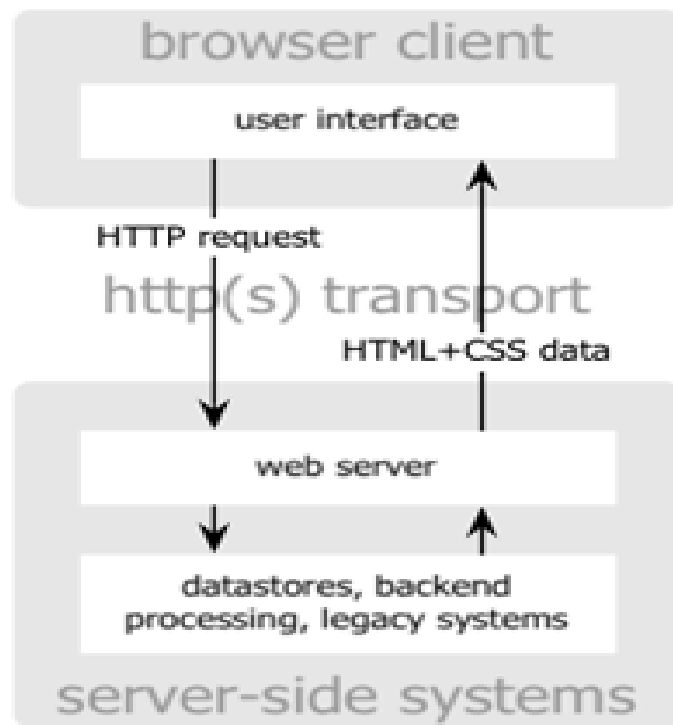
~~ Shashank Daté ~~

~~ Troy Landers ~~

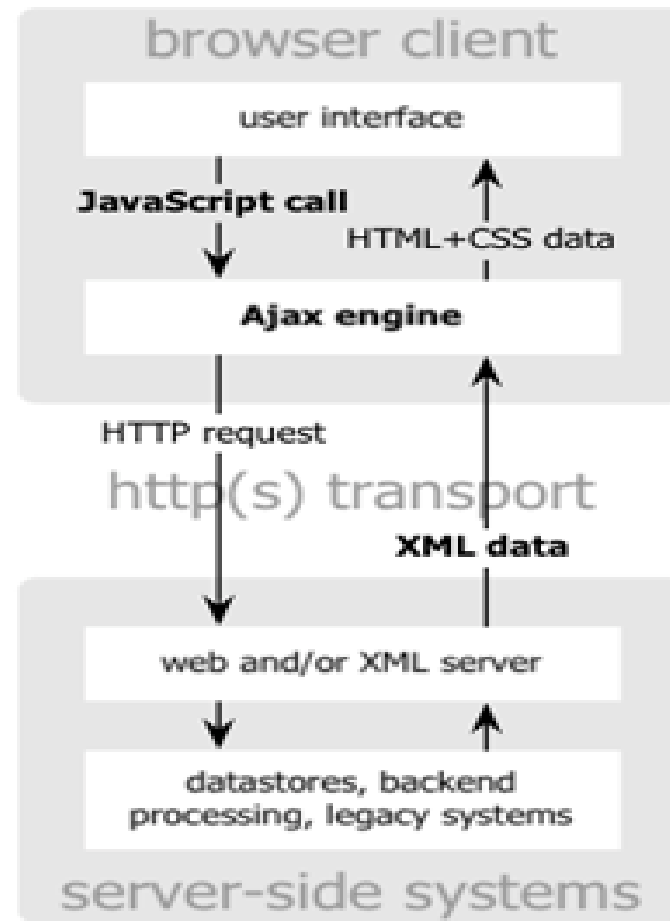
What is Ajax

- **standards-based presentation using XHTML and CSS**
- **dynamic display and interaction using the Document Object Model**
- **data interchange and manipulation using XML and XSLT**
- **asynchronous data retrieval using XMLHttpRequest**
- **and JavaScript binding everything together**

Classic vs. Ajax



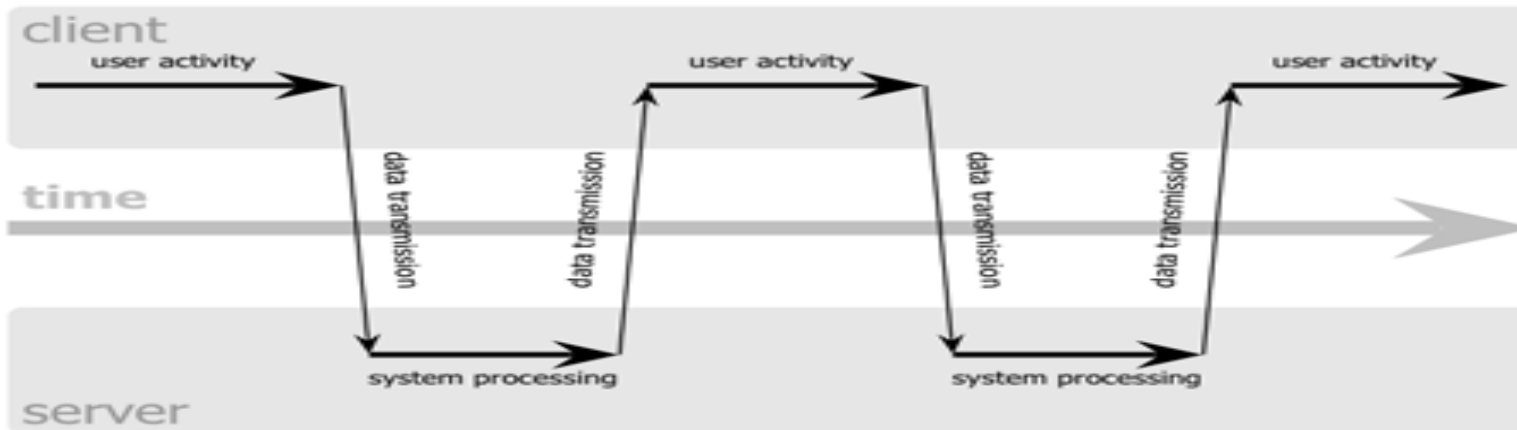
classic
web application model



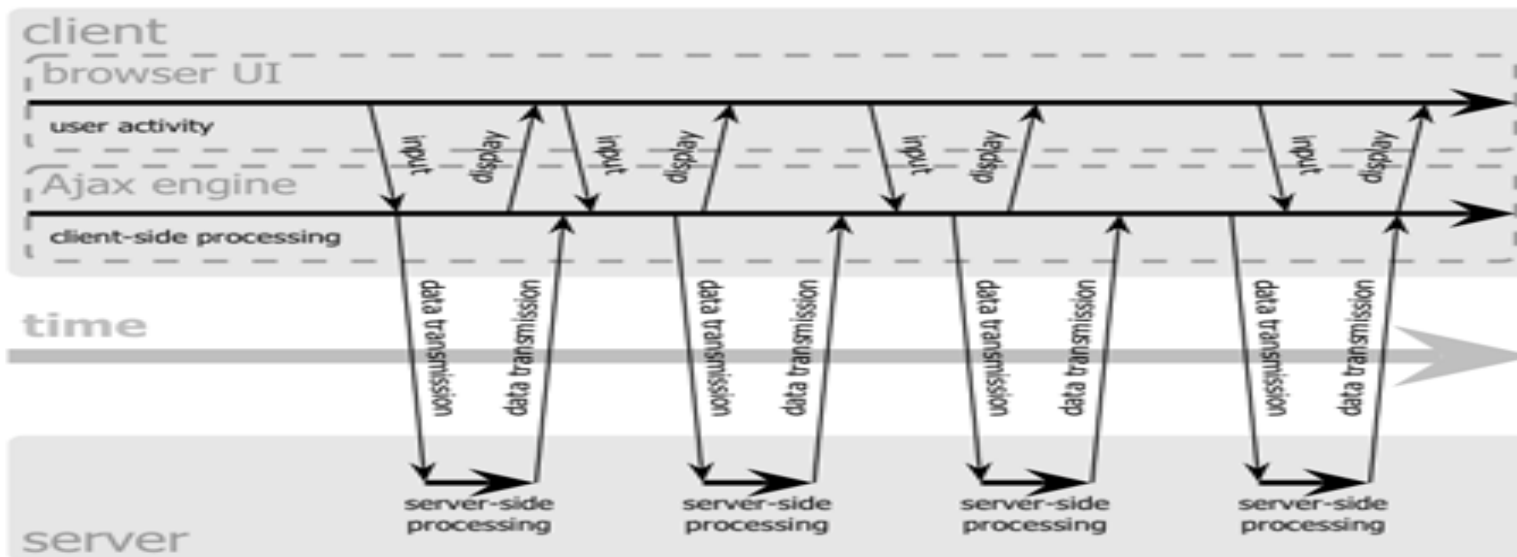
Ajax
web application model

Async Communication

classic web application model (synchronous)



Ajax web application model (asynchronous)



Ajax Architecture



Examples of AJAX

- **GMail**
- **Google Maps**
- **Google Suggest**
- **Flickr**

Is it new?

- **Not Really**
- **Hidden Frames**
 - **IE5+, Mozilla 1.0+, Safari 1.2+, and Opera 7.6+**
- **Java**
 - **Applets**

Why is it popular?

- **Google helped popularize, and legitimize it in GMail**
- **Increase Usability of Web Applications**
- **Rich Internet Applications without Flash**
- **Save Bandwidth**
- **Download only data you need**
- **Faster interfaces (sometimes)**

Why is it bad?

- **Breaks back button support**
- **URL's don't change as state changes**
- **Cross Browser Issues can be a pain**
- **JavaScript may tax older machines CPU**
- **Can't access domains other than the calling domain**
- **May be disabled (for security reasons) or not available on some browsers**
- **Debugging is difficult**

XMLHttpRequest

- **A JavaScript Class that lets you make asynchronous HTTP requests from JavaScript**
- **Make an HTTP request from a JavaScript event**
- **A call back JavaScript function is invoked at each state of the HTTP request and response**

XMLHttpRequest Properties

- **onreadystatechange** - call back function for state changes
- **readyState** - the current state of the HTTP call
- **responseText** - the text result of the request
- **responseXML** - DOM xml object from the request
- **status** - HTTP status code of the response
- **statusText** - HTTP status text

XMLHttpRequest Example

```
if (window.XMLHttpRequest) {  
    var req = new XMLHttpRequest();  
    req.onreadystatechange =  
    requestStateHandler;  
    req.open("GET", "/somefile.xml", true);  
    req.send("");  
}  
  
function requestStateHandler() {  
    if (req.readyState == 4) { //response ready  
        alert(req.statusText);  
    }  
}
```

IE does it differently

- The above example however won't work on IE

```
req = new
```

```
ActiveXObject("Microsoft.XMLHTTP");
```

- You can't totally blame them because they invented it
- Native XMLHttpRequest support should be in IE7

Cross Browser AJAX

```
var req;
function loadXMLDoc(url) {
    req = false;
    // branch for native XMLHttpRequest object
    if(window.XMLHttpRequest) {
        try {
            req = new XMLHttpRequest();
        } catch(e) {
            req = false;
        }
        // branch for IE/Windows ActiveX version
    } else if(window.ActiveXObject) {
        try {
            req = new ActiveXObject("Msxml2.XMLHTTP");
        } catch(e) {
            try {
                req = new ActiveXObject("Microsoft.XMLHTTP");
            } catch(e) {
                req = false;
            }
        }
    }
    if(req) {
        req.onreadystatechange = processReqChange;
        req.open("GET", url, true);
        req.send("");
    }
}
```


Flash vs AJAX

- **No plugin for AJAX**
- **Flash development tools cost money**
- **Flash typically has slower page load time**
- **Flash can work on older browsers**
- **ActionScript doesn't have a cross browser issues**
- **Flash can access other domains if there is a crossdomain.xml file**

Basic Ajax Example

See [step1-4.html](#), and [doc.xml](#).

1. Create web page.
2. Create method to get XMLHttpRequest object.
3. Write handler function.
4. Put it all together.

Acknowledgements

Some information and diagrams from:

- <http://www.adaptivepath.com/publications/essays/archives/000385.php>
- <http://www.petefreitag.com/item/514.cfm>