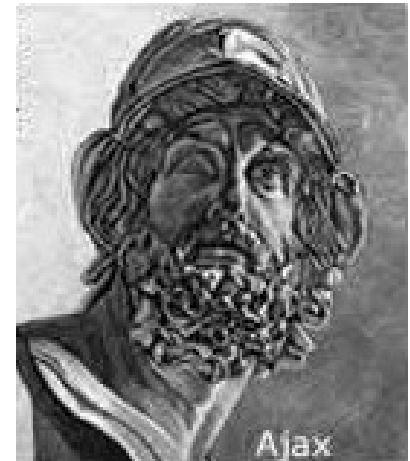


INNOV-2: Build a Better Web Interface Using AJAX

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PROGRESS SOFTWARE
Exchange
2006



Session Goals

- **Define and Explain AJAX**
- **Demonstrate the benefits of AJAX in web interfaces**
- **Provide basic tools for adding AJAX to web interfaces**
- **Provide examples of AJAX web interfaces**

Advantages of Web Interfaces

- **Thin Client**
- **Easy Deployment**
- **OS Independence**

Disadvantages of Web Interfaces

JavaScript / DHTML

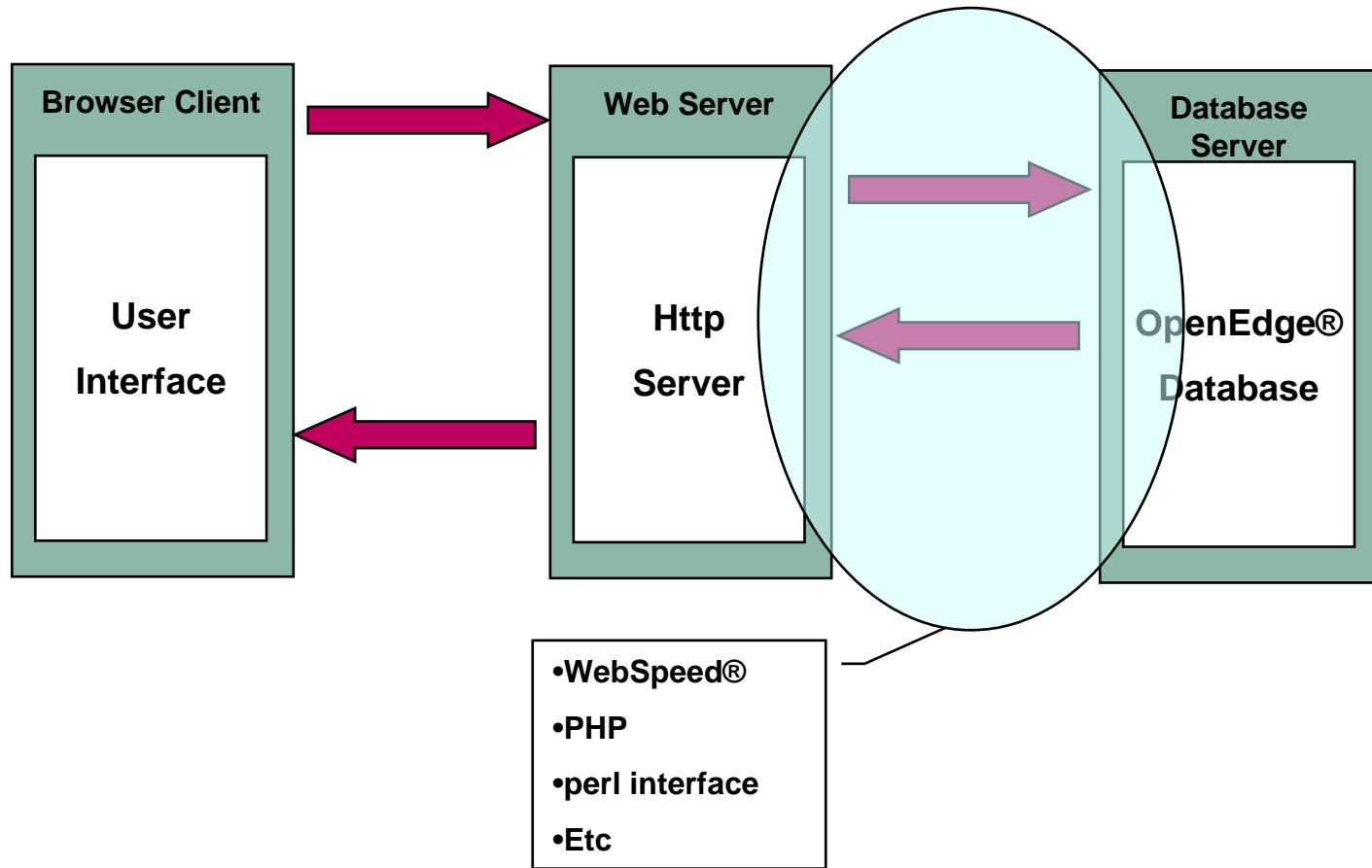
- ~~User Interface is not as rich~~
- ~~Web pages don't interact with databases~~

AJAX

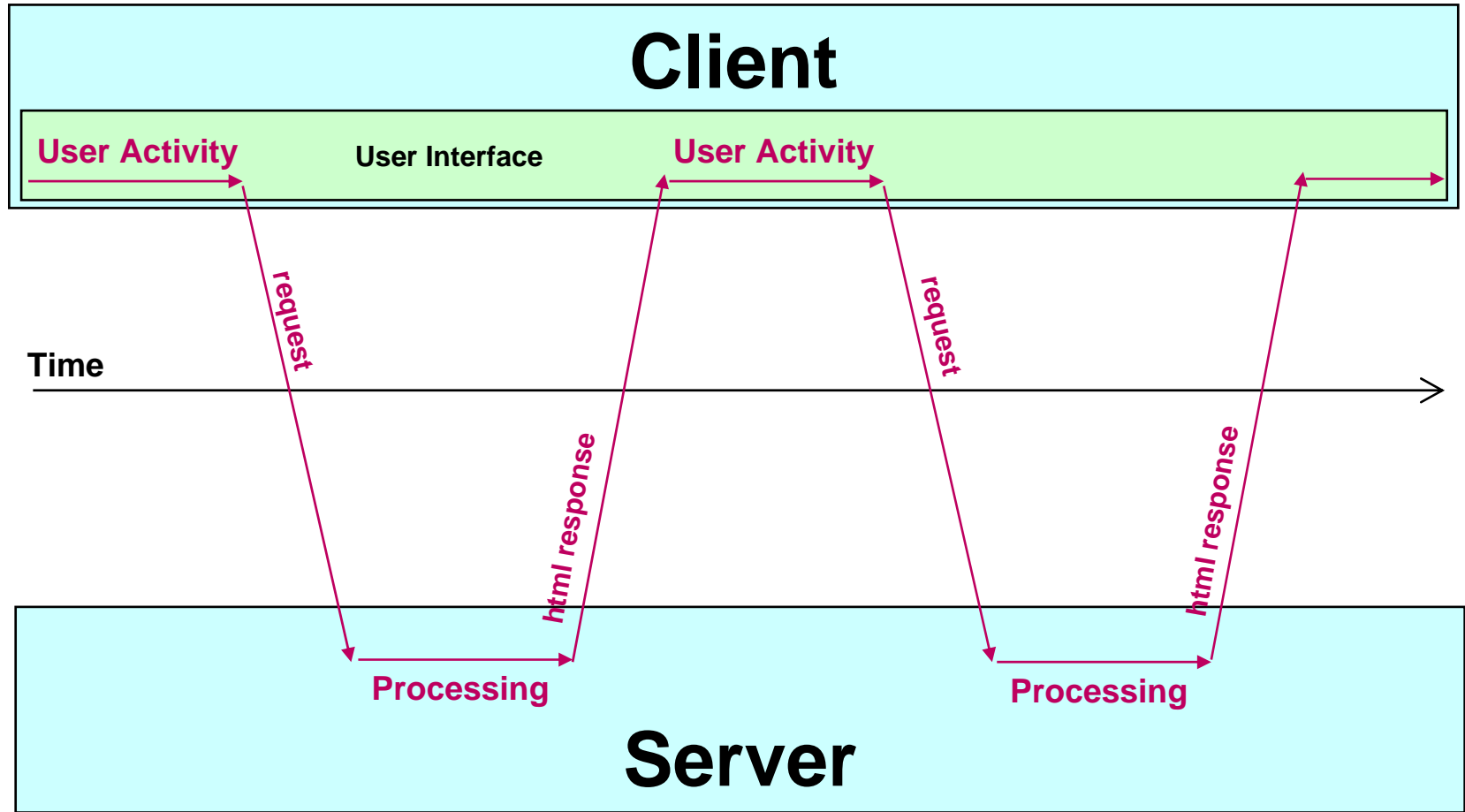
What is AJAX?

- **AJAX (Asynchronous JavaScript And XML)** is an emerging methodology for adding interactivity between a web page and a server-side process.
- **AJAX is not a new technology, it is a method of using several existing technologies together, including**
 - **HTML/XHTML**
 - **CSS**
 - **JavaScript**
 - **DOM**
 - **XML***

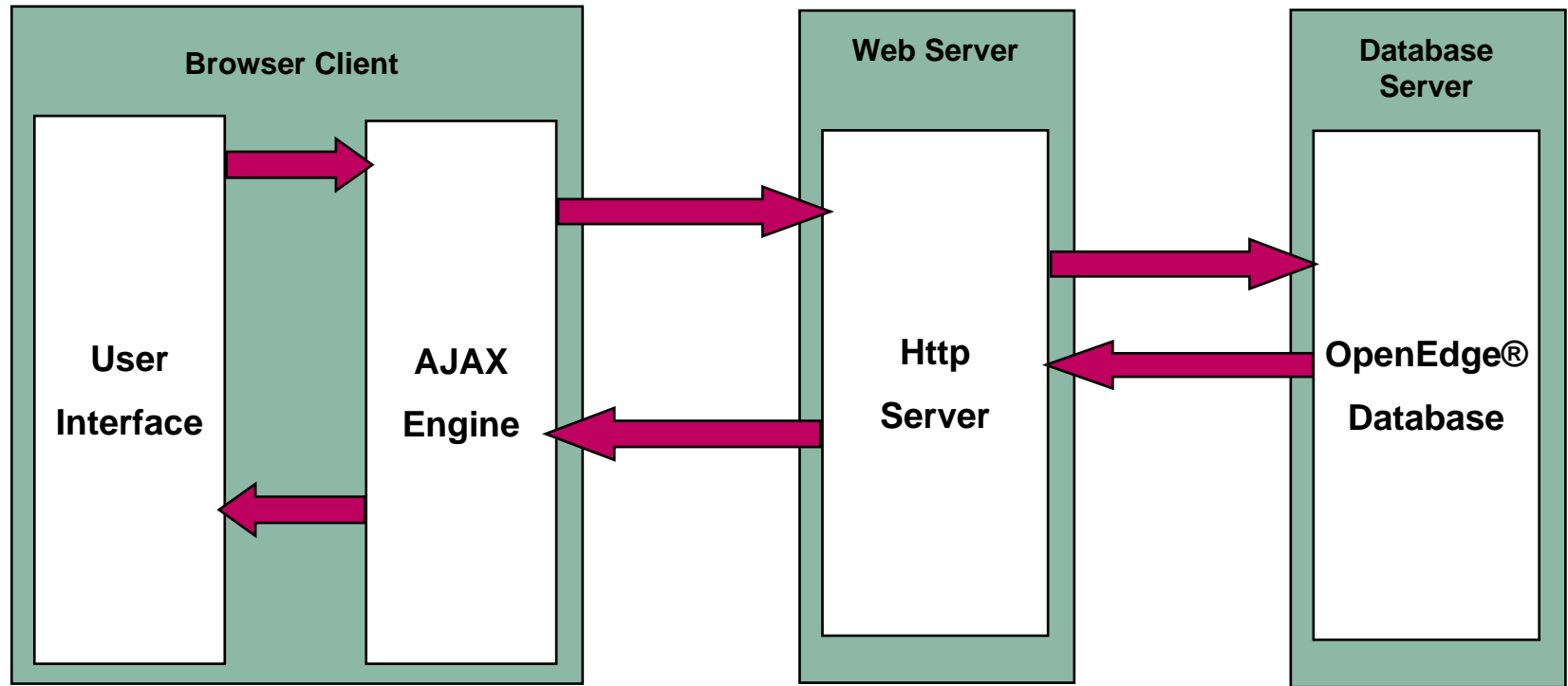
Typical Web Application Architecture



Typical Web Application Architecture



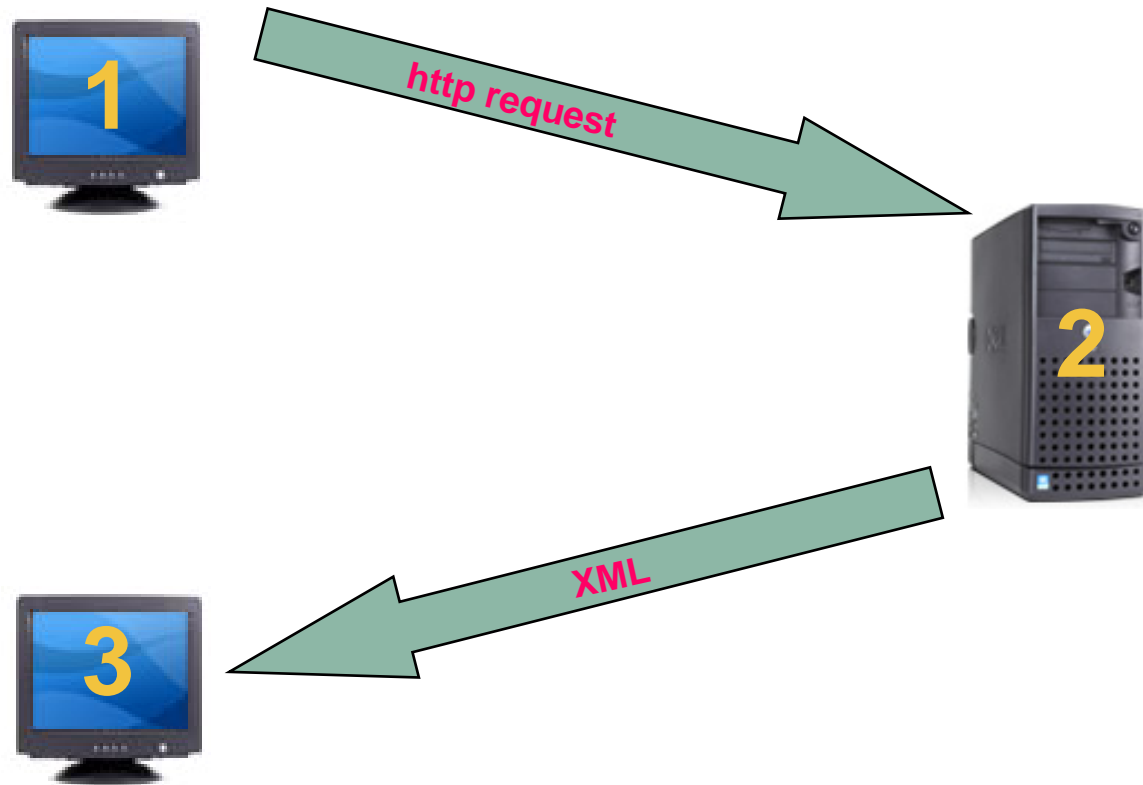
AJAX Application Architecture



Demo



Anatomy of an AJAX Engine



JavaScript XMLHttpRequest Object

```
<script>  
req = new XMLHttpRequest();  
req.onreadystatechange = processReqChange;  
req.open("GET", url, true);  
req.send(null);  
</script>
```

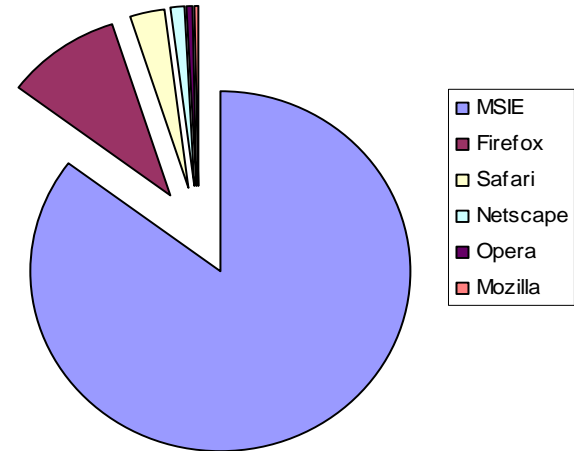
XMLHttpRequest Browser Support

- **Firefox**
- **Safari**
- **Netscape**
- **Opera**
- **Mozilla**

What about Microsoft?



Microsoft Internet Explorer still has a 85% market share*



*As of Feb 2006

Microsoft's XMLHTTP ActiveX Object

```
<script>
req = new ActiveXObject("Microsoft.XMLHTTP");
if (req) {
    req.onreadystatechange = processReqChange;
    req.open("GET", url, true);
    req.send();
}
</script>
```

Cross-Browser http request script

```
// branch for native XMLHttpRequest object
if (window.XMLHttpRequest) {
    req = new XMLHttpRequest();
    req.onreadystatechange = processReqChange;
    req.open("GET", url, true);
    req.send(null);
// branch for IE/Windows ActiveX version
} else if (window.ActiveXObject) {
    req = new ActiveXObject("Microsoft.XMLHTTP");
    if (req) {
        req.onreadystatechange = processReqChange;
        req.open("GET", url, true);
        req.send();
    }
}
```


A simple processReqChange script

```
function processReqChange() {
    // only if req shows complete
    if (req.readyState == 4) {
        // only if OK
        if (req.status == 200 || req.status == 0) {
            xmlResponse =
                req.responseXML.documentElement;
            if (xmlResponse.tagName == 'something')
                {runSomething(xmlResponse);}
        } else {
            alert('There was a problem retrieving' +
                'the XML data: ' +
                req.statusText);
        }
    }
} // processReqChange()
```

Putting it all Together: A Threadsafe AJAX Engine

```
function ajaxRequest(url) {
    function processReqChange() {...}

    var req = null;

    // prevent browser caching...
    url += ((url.indexOf('?') > -1) ? '&' : '?') +
        'ajaxid=' + new Date().valueOf();

    // branch for native XMLHttpRequest object
    if (window.XMLHttpRequest) {
        ...
    // branch for IE/Windows ActiveX version
    } else if (window.ActiveXObject) {
        ...
    }
} // ajaxRequest( url )
```

Demo



AJAX Examples on the Internet

- Google's gmail interface
- Google Suggest
- Yahoo! maps

Pros and Cons of AJAX Interfaces



- **Adds Interactivity**
- **Portability**
- **Easy to implement**
- **Many resources available**
- **Buzzword compliance**



- **Increased server load**
- **Need some JavaScript knowledge**

Summary

- **AJAX is an emerging methodology for adding interactivity between web pages and databases**
- **AJAX is not difficult to implement!**
- **AJAX Enabled web interfaces are the future of web applications**

More Resources

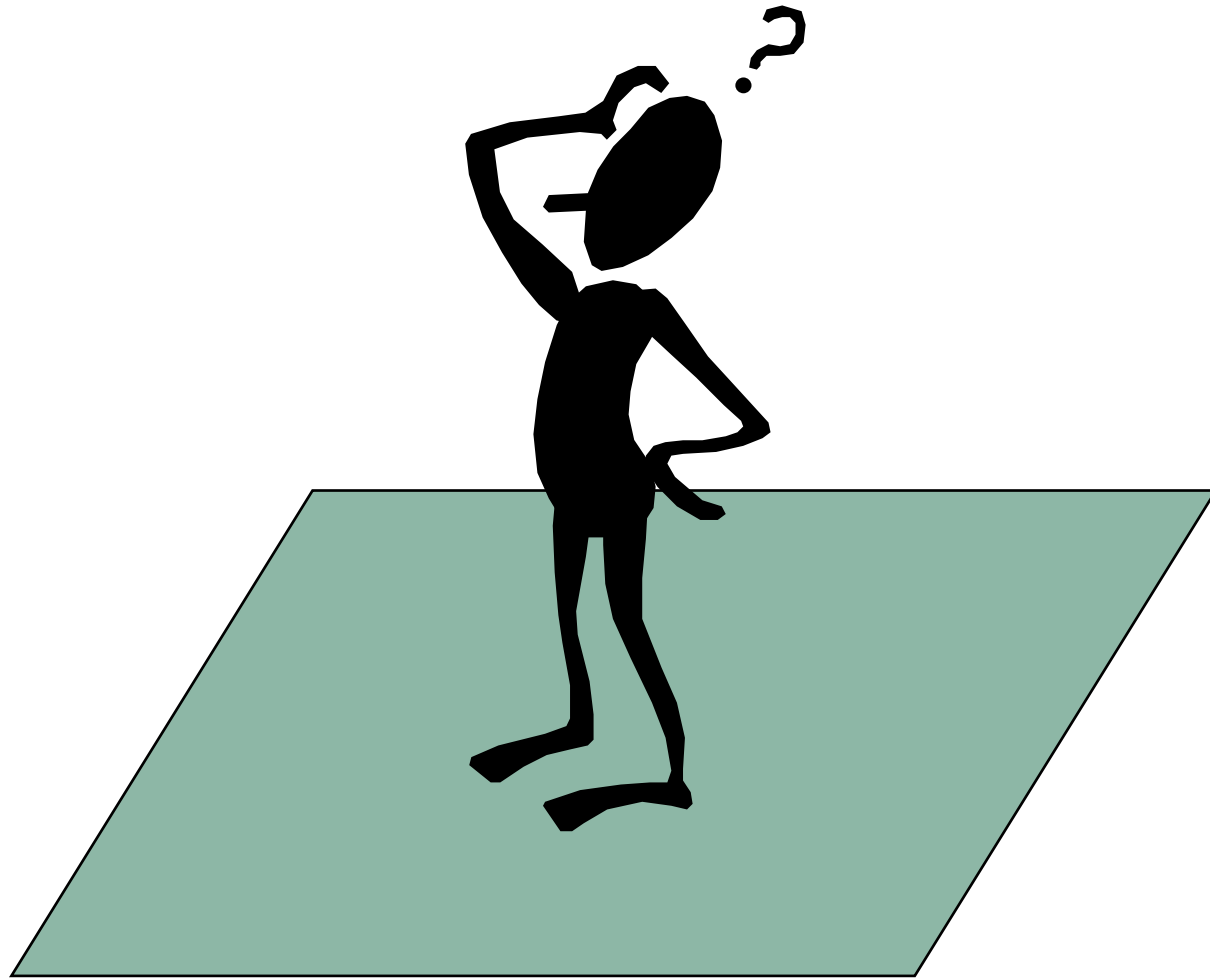
- **Exchange**
 - **INNOV-17: Rich User Interface for the Web????
AJAX to the Rescue (Ken Wilner)**
- **Print**
 - **Manning *Ajax In Action***
 - **O'Reilly *JavaScript The Definitive Guide***

More Resources

■ Internet

- <http://www.adaptivepath.com/publications/essays/archives/000385.php>
- <http://www.xml.com/>
- <http://www.ajaxian.com/>
- <http://script.aculo.us/>
- <http://openrico.org/>
- <http://www.openarchitect.com/pjx/pjax.html>

Questions?



Thank you !



Ajax & Achilles Playing Draughts

<http://www.pandora-sys.com/innov-2/>