

A green chalkboard with two pieces of pink chalk and some faint white chalk drawings. The chalkboard is the background for the text. The text is in a dark blue, bold, sans-serif font. The author's name is in a black, bold, sans-serif font.

AJAX **(Asynchronous Javascript And XML)**

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What is AJAX ?

- Singkatan dari Asynchronous Javascript And XML.
- Dengan menggunakan AJAX, memungkinkan aplikasi web untuk mengirim data ke dan mengambil data (biasanya berbentuk XML) dari suatu server web di-background tanpa mengganggu tampilan dari halaman web yang sedang aktif.
- AJAX adalah nama baru untuk teknik lama:
 - *JavaScript + DHTML + XMLHttpRequest*
 - *Digunakan sejak 1997*
 - *Sudah di-enable baik di Web Server maupun di Web Browser.*

Komponenten AJAX

XHTML and CSS

Ajax applies these familiar Web standards for styling the look and feel of a page and to markup those areas on a page that will be targeted for data updates.

DOM (document object model)

Ajax uses the DOM to manipulate dynamic page views for data and to walkthrough documents to “cherrypick” data. The DOM enables certain pieces of an Ajax page to be transformed and updated with data.

XML, JSON (Javascript Object Notation), HTML, or plain text

Ajax can use any of these standards to provide structure to the data it passes to and from a page.

XMLHttpRequest object

The heavy lifter for Ajax: It’s a javascript object embedded in most modern browsers that sets up data request/response pipelines between client and server.

Javascript

Lightweight programming language that Ajax uses for instructions to bind all of the components together.

Why AJAX?

- Koneksi antara client-side script dengan server-side script.
- Membuat aplikasi lebih interaktif
- Lebih fleksibel
- Lebih banyak opsi
- Dapat digunakan untuk menggabungkan data dengan Web Service lain
- User tidak perlu mendownload plugin

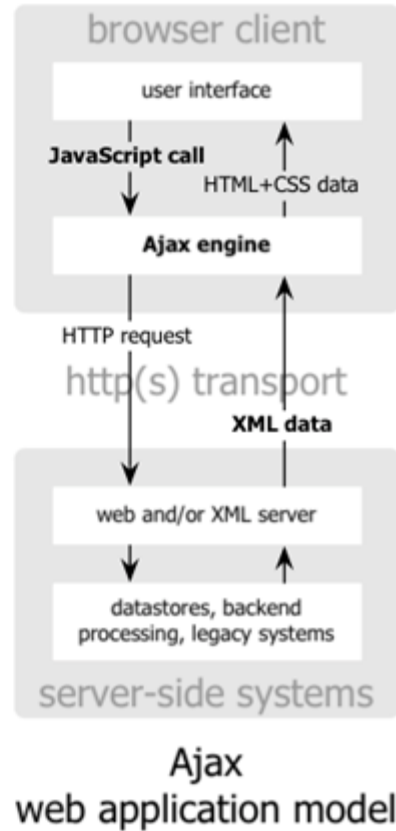
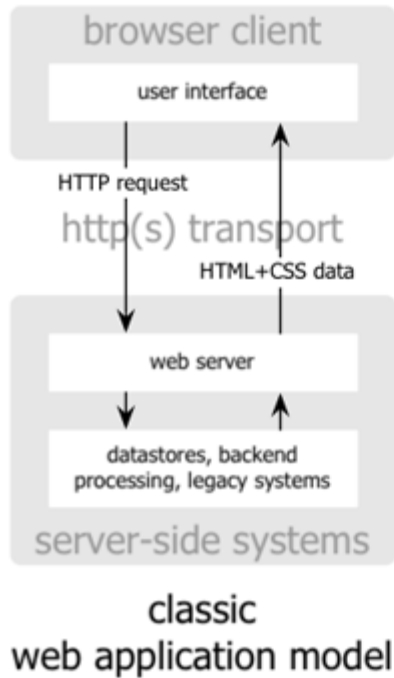
AJAX vs Others

- Client/Server Apps:
 - *Dynamic data*
 - *Static forms, controls, code, etc.*
 - *Efficient, but not flexible*
- Traditional Web Apps:
 - *Dynamic data*
 - *Dynamic forms, controls, code, etc.*
 - *Flexible, but inefficient, and noticeably slow*
- Ajax Apps:
 - *Dynamic data*
 - *Static or dynamic forms, controls, code, etc.*
 - *Best of both worlds*

Server and Client Component

- Server-side Component
 - *Communicates with the database, or web service*
 - *Can be written in any server-side language (PHP, ASP, Coldfusion, etc)*
- Client-side Component
 - *Written in Javascript, often uses XMLHttpRequest*
 - *Accesses the server side page in the background*

Classic VS AJAX



Kenapa menggunakan AJAX?

- Your users will soon demand it
 - *Not just another cool (geeky) technology*
 - *Very user-visible effect*
 - *Rich UI experience in a Web page*
- Portable across browsers
- Plus, all advantages of zero-install Web app
 - *No install done for this demo*
 - *No "DLL Hell"*

AJAX data communication

- Multithreaded data retrieval from Web servers
 - *Pre-fetch data before needed*
 - *Progress indicators*
 - *Appearance of speed*
 - *Avoids need for `setTimeout()`*
- Less bandwidth required; less server load
 - *Reload partial page, not entire page*
 - *Load data only, not even partial page*

Seberapa Besar Penggunaan AJAX?

- Bisa sedikit bisa pula banyak, tergantung dengan kebutuhan
- Tidak perlu meninggalkan/merubah website lama yang sudah ada
- Bisa dikatakan AJAX adalah salah satu trik tambahan dalam pemrograman web
- Bisa dimulai dengan "jazzing up" UI (User Interface) yang sudah ada

Potential Problem

- Javascript HARUS aktif
- Tombol "Back" tidak selalu bekerja seperti yang diinginkan
- Halaman web susah untuk di-bookmark
- Mesin pencari mungkin tidak bisa meng-index semua bagian dari website dengan AJAX

Bagaimana Menggunakan AJAX?

- Sangat sederhana
- Gunakan XMLHttpRequest Object.



XMLHttpRequest Method

- open (“method”, “URL”, [async, username, password])
 - *Assigns destination URL, method, etc.*
- send (params)
 - *Sends request including postable string or DOM object data*
- abort ()
 - *Terminates current request*
- getAllResponseHeaders ()
 - *Returns headers (name/value pairs) as a string*
- getResponseHeader (“header”)
 - *Returns value of a given header*
- setRequestHeader (“label”, “value”)
 - *Sets Request Headers before sending*

XMLHttpRequest Properties

- **onreadystatechange**
 - *Event handler (your code) that fires at each state change*
- **readyState**

<i>0 = uninitialized</i>	<i>3 = interactive (some data has been returned)</i>
<i>1 = loading</i>	<i>(broken in IE 6.0)</i>
<i>2 = loaded</i>	<i>4 = complete</i>
- **status**
 - *HTTP Status returned from server: 200-299 = OK*
- **responseText**
 - *String version of data returned from server*
- **responseXML**
 - *XML DOM document of data returned*
- **statusText**
 - *Status text returned from server*

Contoh Sederhana

```
var req = new XMLHttpRequest();  
req.onreadystatechange = myHandler;  
req.open("GET", "servlet", true);  
req.send("p1=abc");  
  
...  
  
function myHandler() {  
    if (req.readyState == 4) {  
        doSomethingWith(req.responseXML);  
    }  
    else if (req.readyState == 3) {  
        showProgressIndicator();  
    }  
}
```

Contoh website dengan AJAX

- Windows Live Local
- Flickr
- Google Maps
- Google Calendar
- Dan lain-lain

AJAX References

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THANK YOU