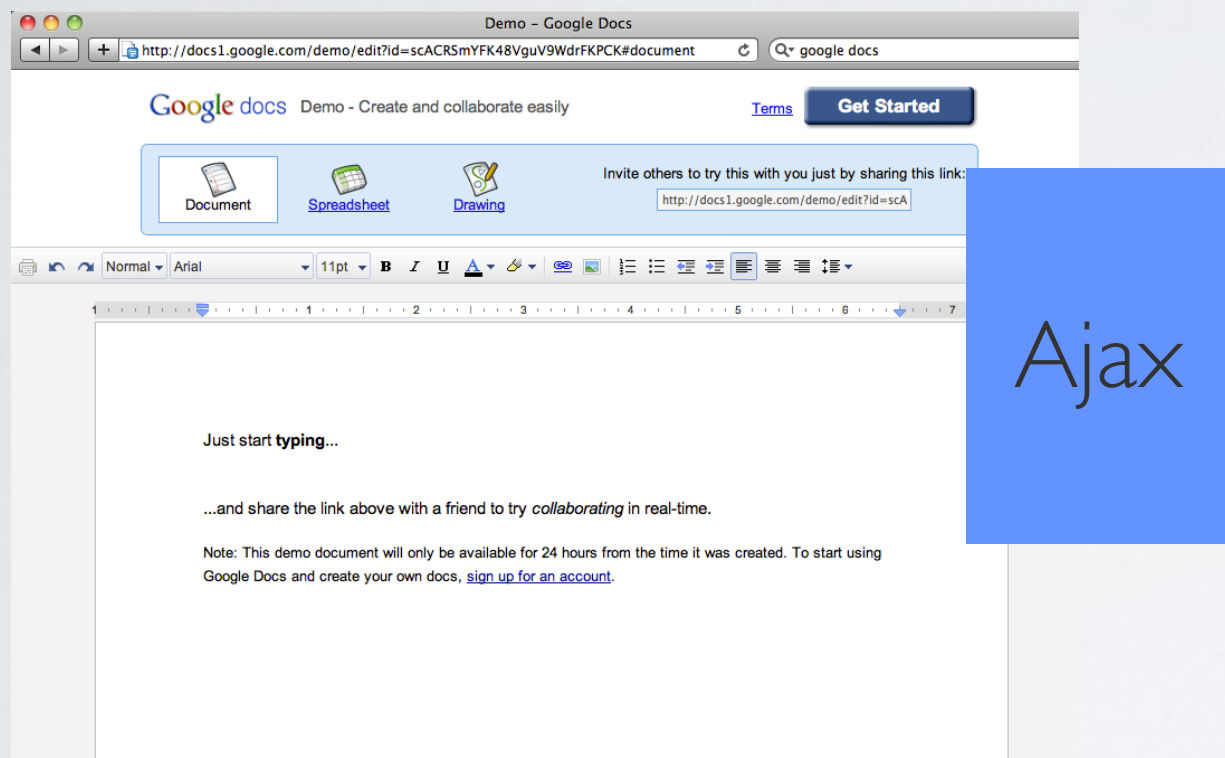


Ajax

Thierry Sans

Ajax - fetching data without refreshing the page



Javascript



Why do we need Ajax?

So far, when we wanted to

- send data to the server
- or retrieve data from the server
- we had to refresh the entire page
(i.e reloading HTML, CSS, JS and all media files)
- ✓ But, why not using Javascript to process the data
and perform the necessary page changes?

Ajax - Asynchronous Javascript And XML

Fetch/push content from/to the server asynchronously
i.e without having to refresh the page

- ⦿ Ajax is not a language

- ✓ It is a simple **Javascript command**

History of Ajax

- Patent from Microsoft (filled in 2000, granted in 2006)
 - XMLHttpRequest ActiveX control (Internet Explorer 5)
- Adopted and adapted by Opera, Mozilla and Apple
 - XMLHttpRequest Javascript object (standard)
- Before / After IE7
 - ◉ Different code for different browser (emergence of the javascript framework *Prototype*)
 - ✓ Javascript Object was adopted by IE7

Ajax revolutionized the Web

✓ Started with Gmail and Google Maps

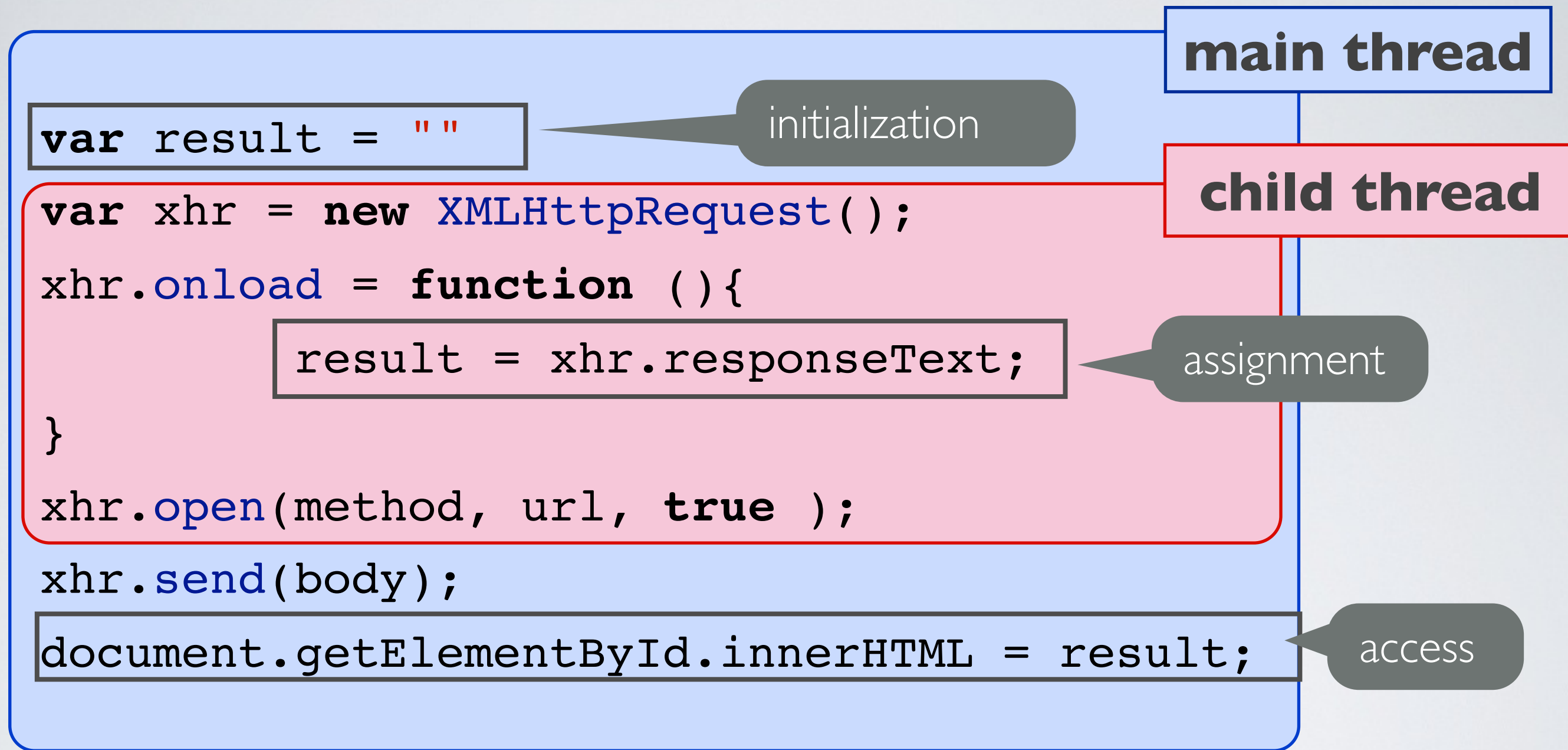
- Advantages
 - Low latency
 - Rich interactions
- Consequences
 - Webapp center of gravity moved to the client side
 - Javascript engine performance race

Standard Ajax

```
var xhr = new XMLHttpRequest();  
xhr.onload = function() {  
    if (xhr.status !== 200)  
        console.error("[ " + xhr.status + " ]" + xhr.responseText);  
    else  
        console.log(xhr.responseText);  
};  
xhr.setRequestHeader(key, value);  
xhr.open(method, url, true);  
xhr.send(body);
```

(always) asynchronous

Concurrency issue in Ajax - a typical example



result will either be "" or "Hello world"
depending on the execution (non determinism)
➔ **Race Condition!**