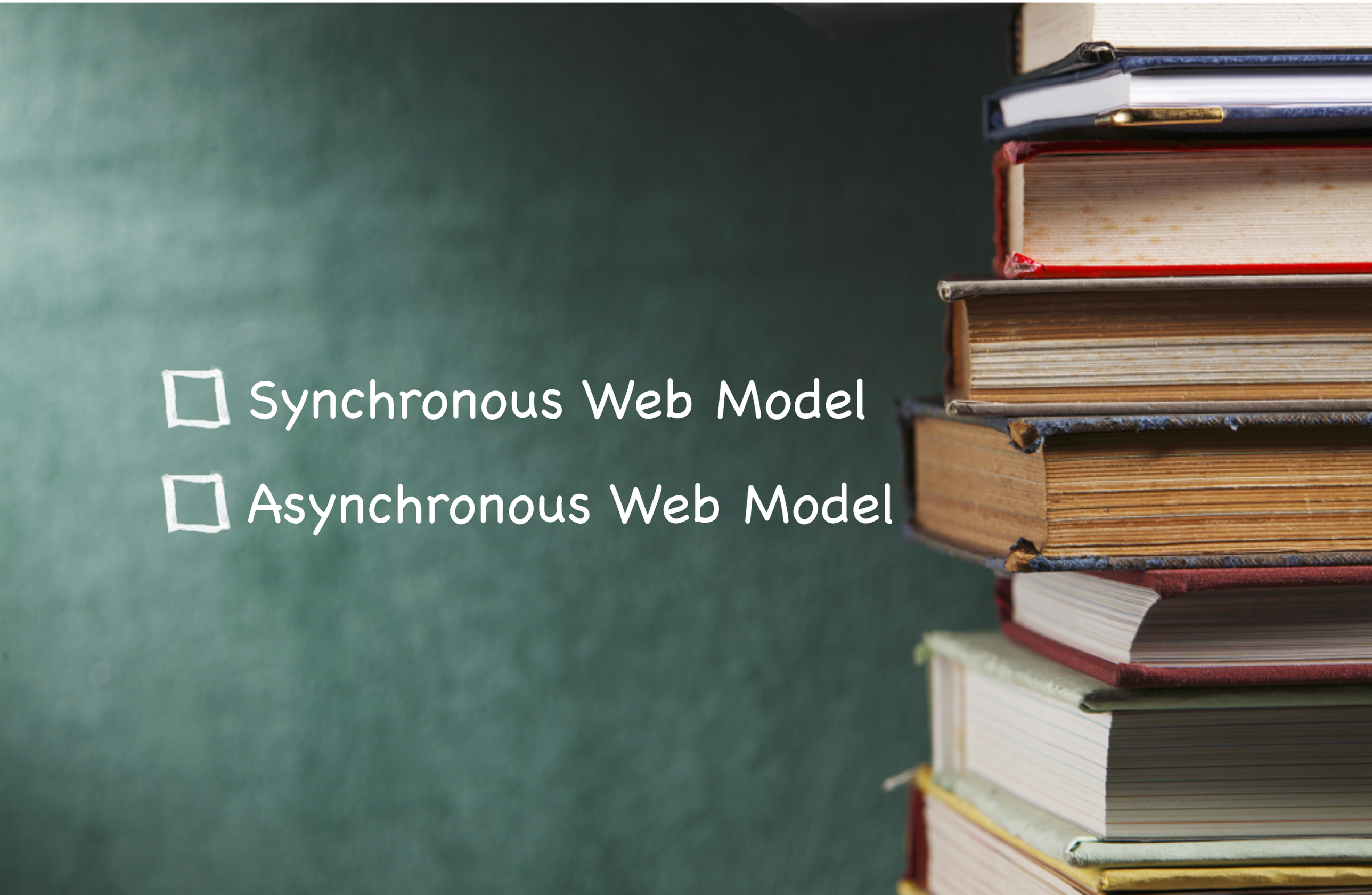
Webontwikkeling 4

Asynchronous Web Model (AJAX)

Elke Steegmans

Agenda



Synchronous Web Model

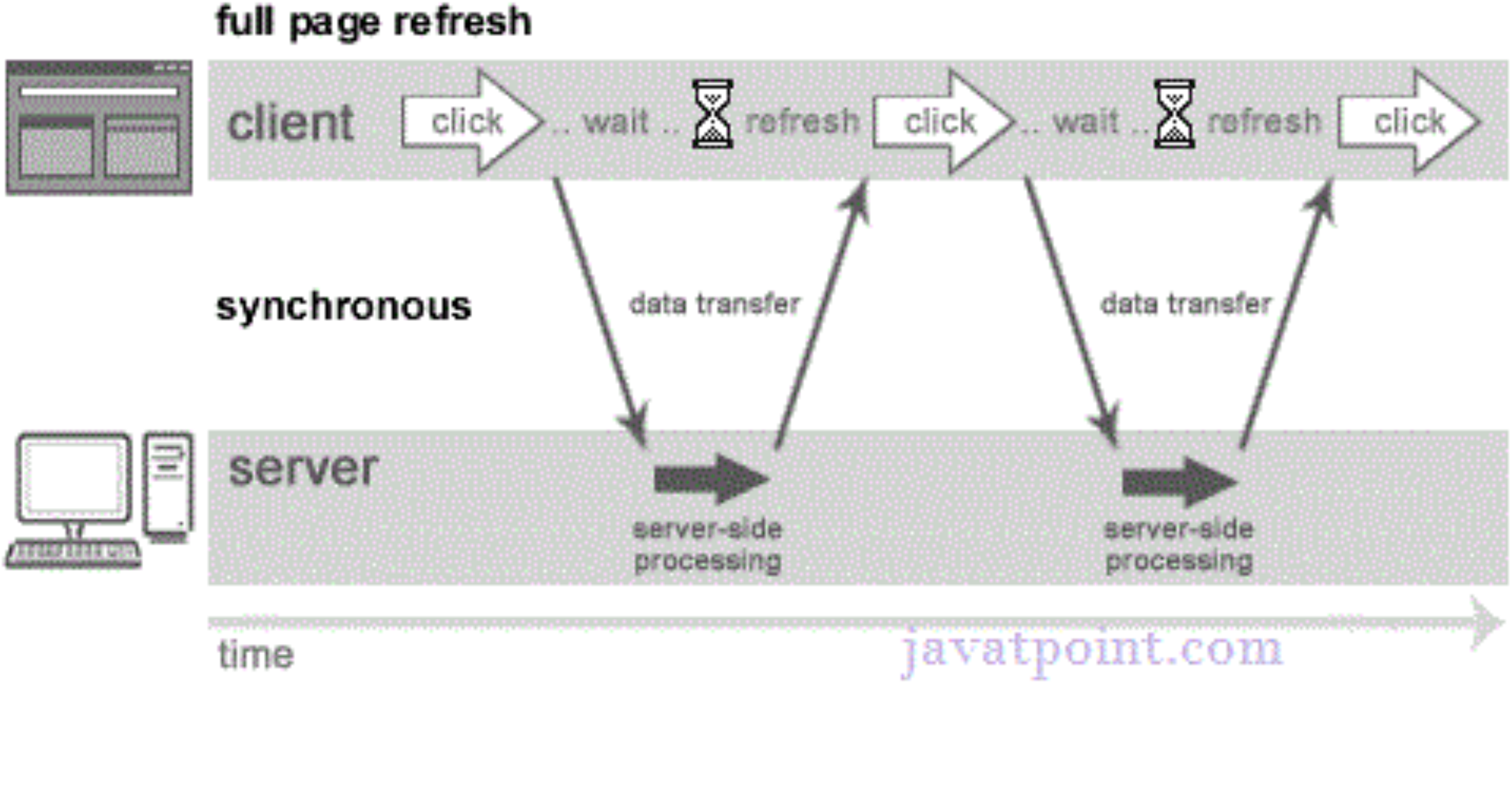
- "request/response" cycle:
  - **enter** your data,
  - **send** the page to the server, and
  - **wait** for a response

Synchronous: user has to wait!

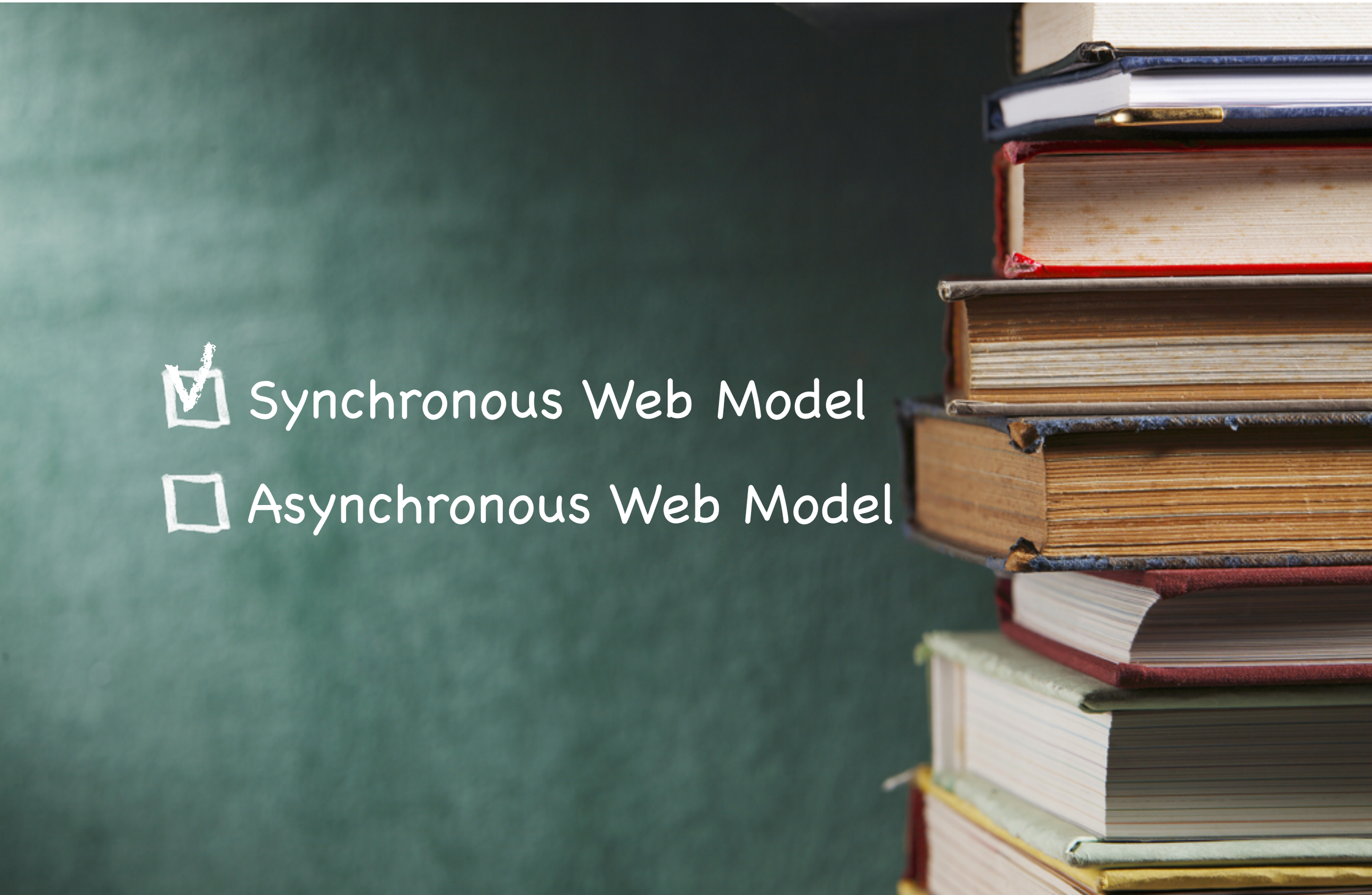
DISADVANTAGES

- "enter, send, and wait": wasted time!
- whenever you refresh a page, you are sending a new request back to the server
  - extra server processing
  - time lost while waiting for a response
  - higher bandwidth consumption caused by redundant page refreshes

SYNCHRONOUS WEB MODEL



Agenda



Aggregators
Folksonomy
Wikis
Blogs
User Centered
Joy of Use
Participation
Six Degrees
Pagerank
XFN
Usability
Widgets
Recommendation
Social Software
FOAF
Browser
Sharing
Collaboration
Perpetual Beta
Simplicity
Videocasting
Podcasting
AJAX
Audio
IM
Video
Web 2.0
Design
Convergence
CSS
Pay Per Click
UMTS
Mobility
Atom
XHTML
SVG
Ruby on Rails
VC
Trust
Affiliation
OpenAPIs
RSS
Semantic
Web Standards
SEO
Economy
OpenID
Remixability
REST
Standardization
The Long Tail
DataDriven
Accessibility
XML
Microformats
Syndication
Modularity
SOAP

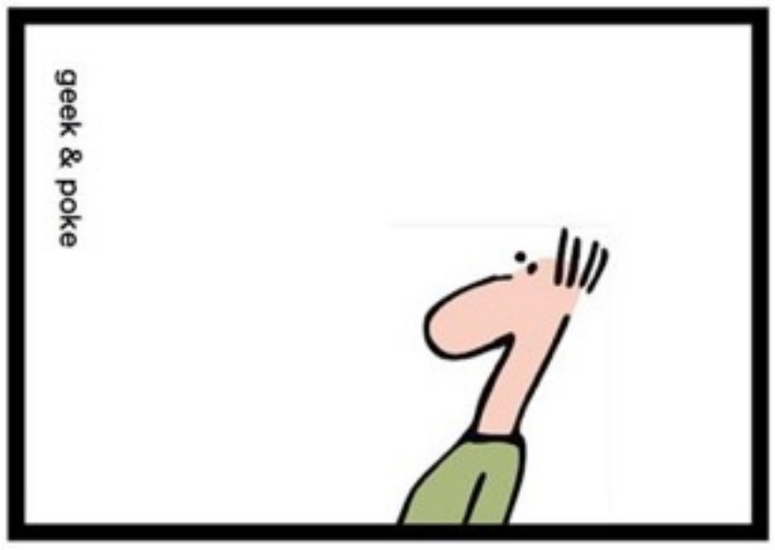
AJAX


Nieuw
ONWEERSTAANBARE FRISHEID VOLGENDE DAG
AJAX
Fête des Fleurs

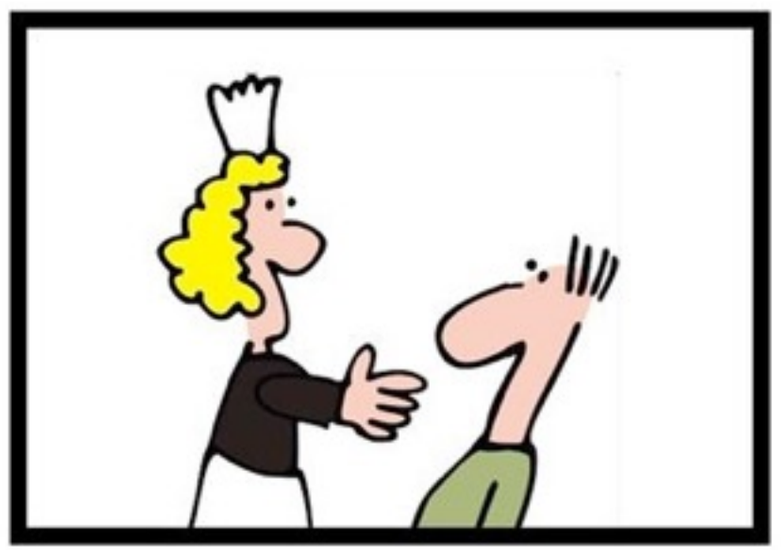

AJAX
AMSTERDAM


AJAX
Asynchronous Javascript And XML

SIMPLY EXPLAINED



NO AJAX

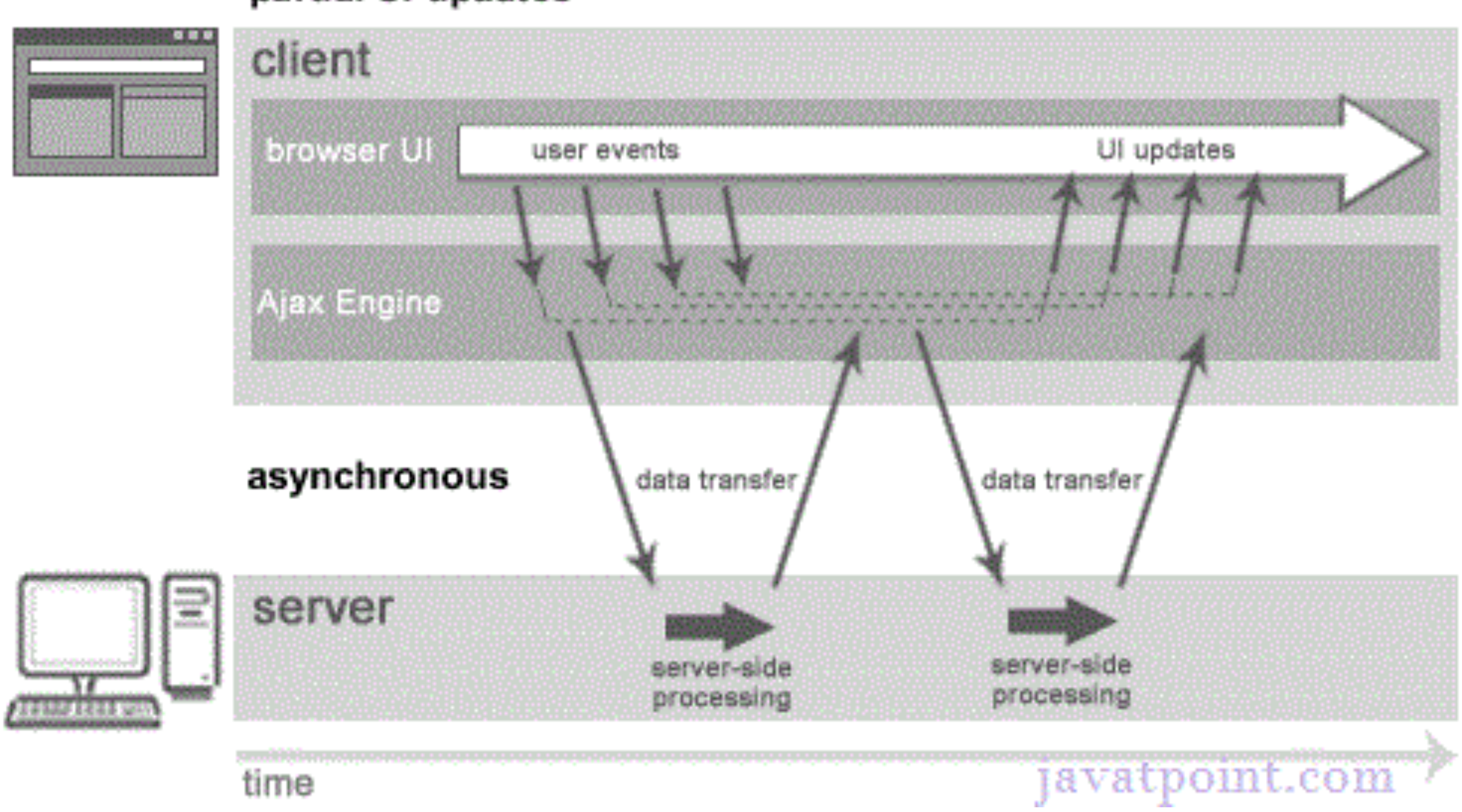


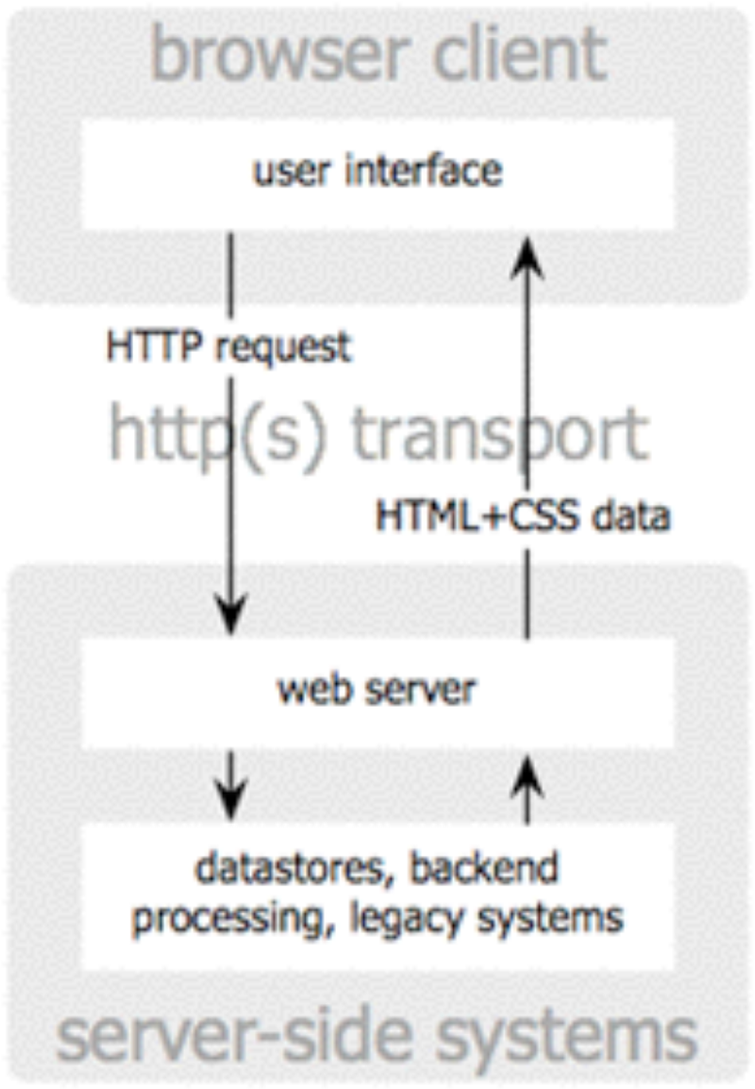
AJAX

Asynchronous Web Model

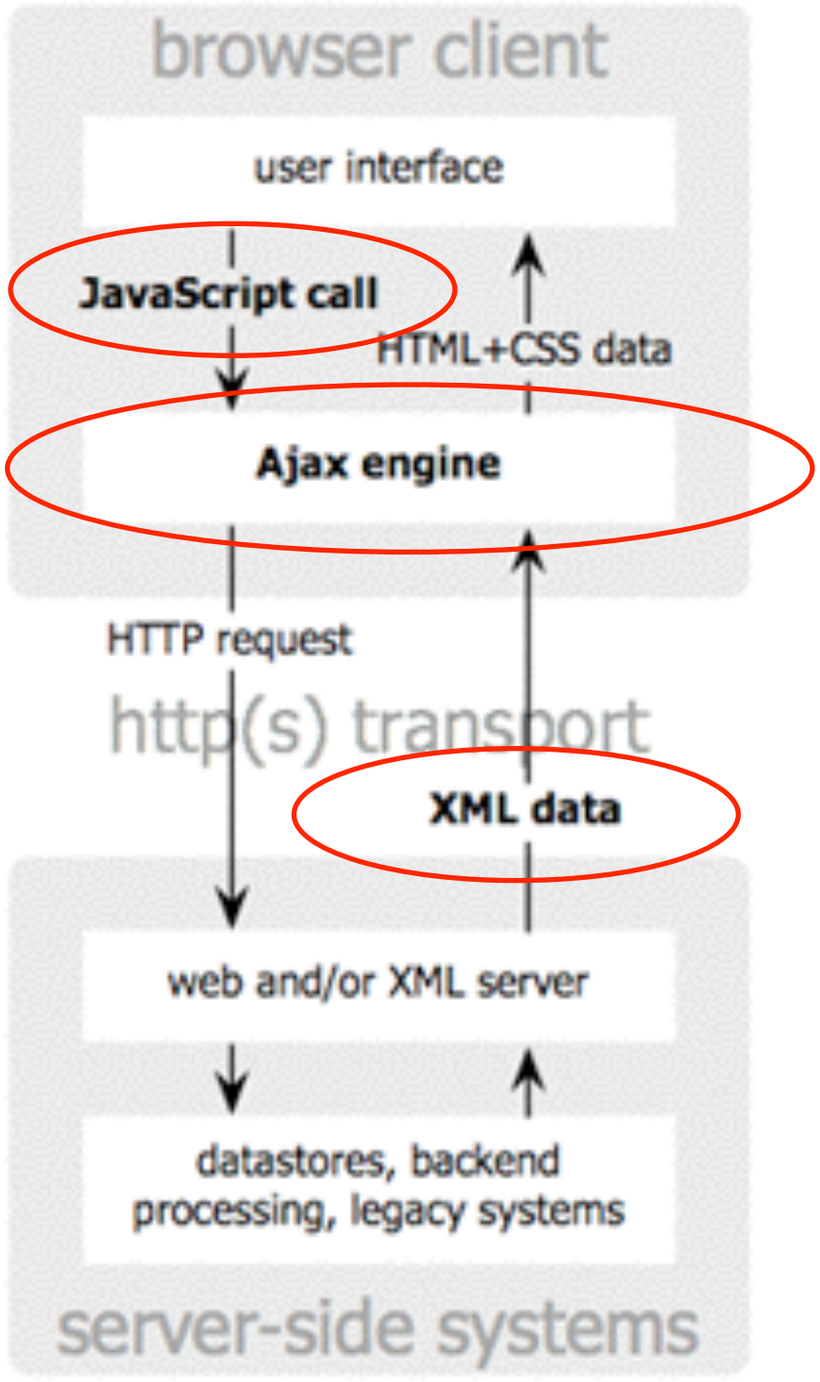
- AJAX introduces the idea of a "partial screen update" to the web application model
  - only the user interface elements that contain new information will be updated,
  - the rest of the user interface will be unchanged

ASYNCHRONOUS WEB MODEL





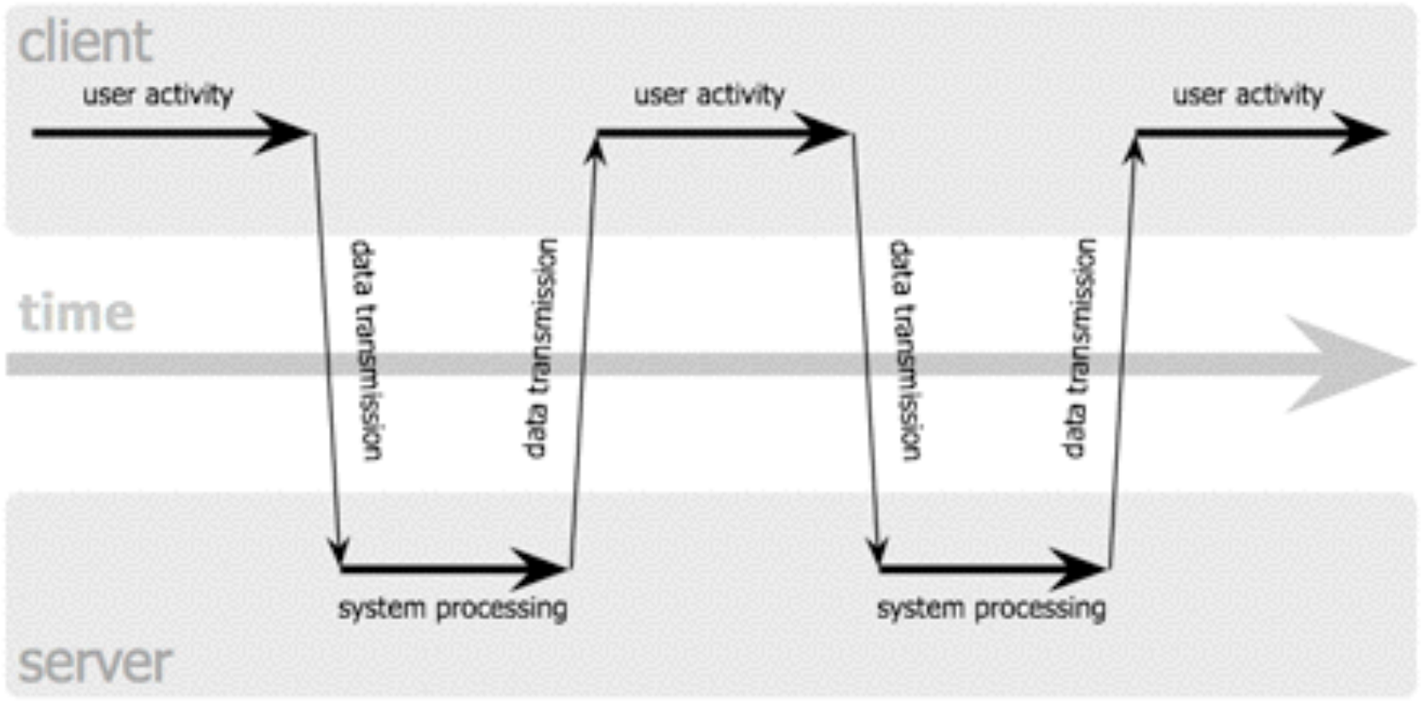
classic
web application model



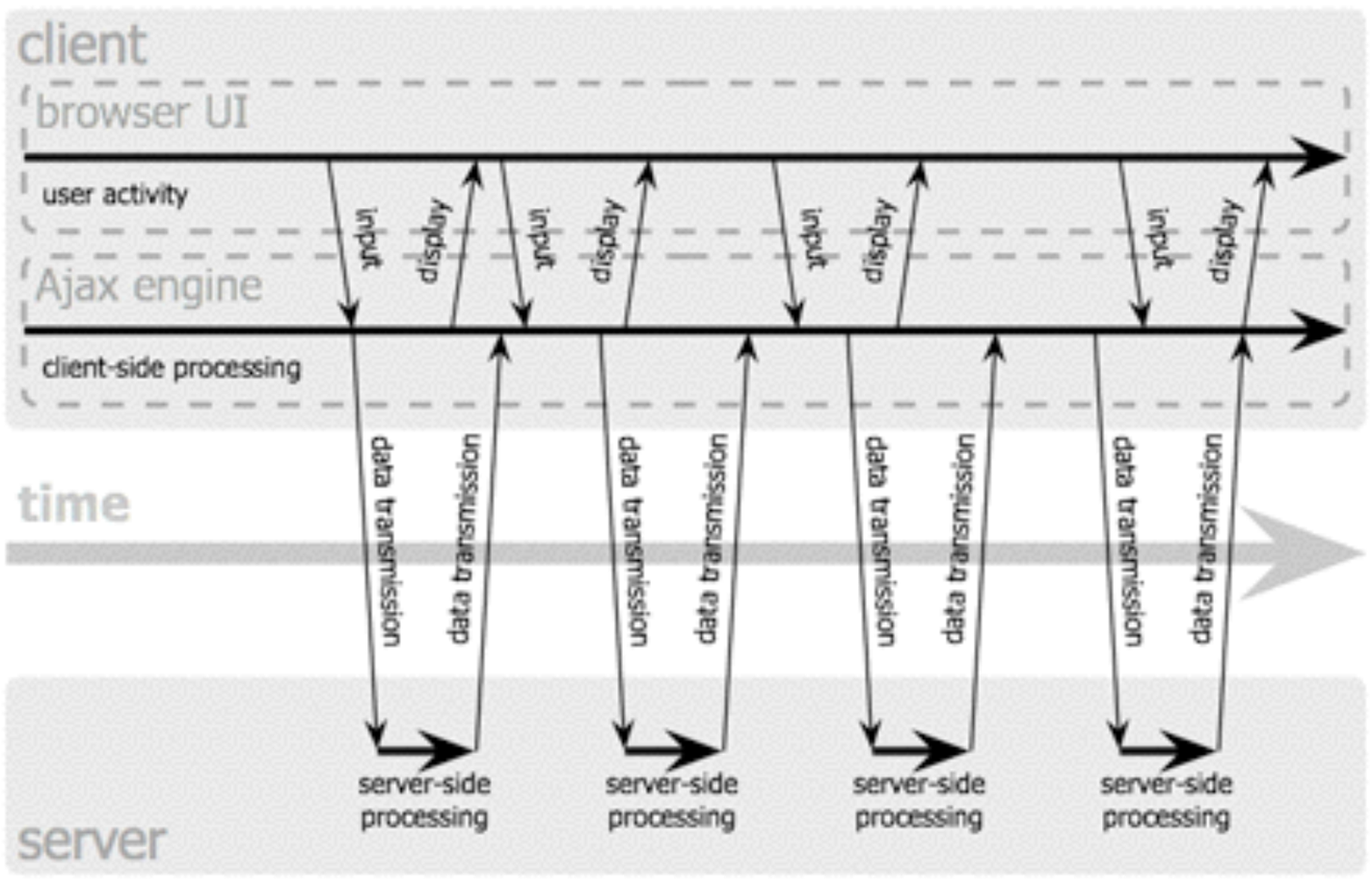
Ajax
web application model

Jesse James Garrett / adaptivepath.com

classic web application model (synchronous)



Ajax web application model (asynchronous)



Jesse James Garrett / adaptivepath.com

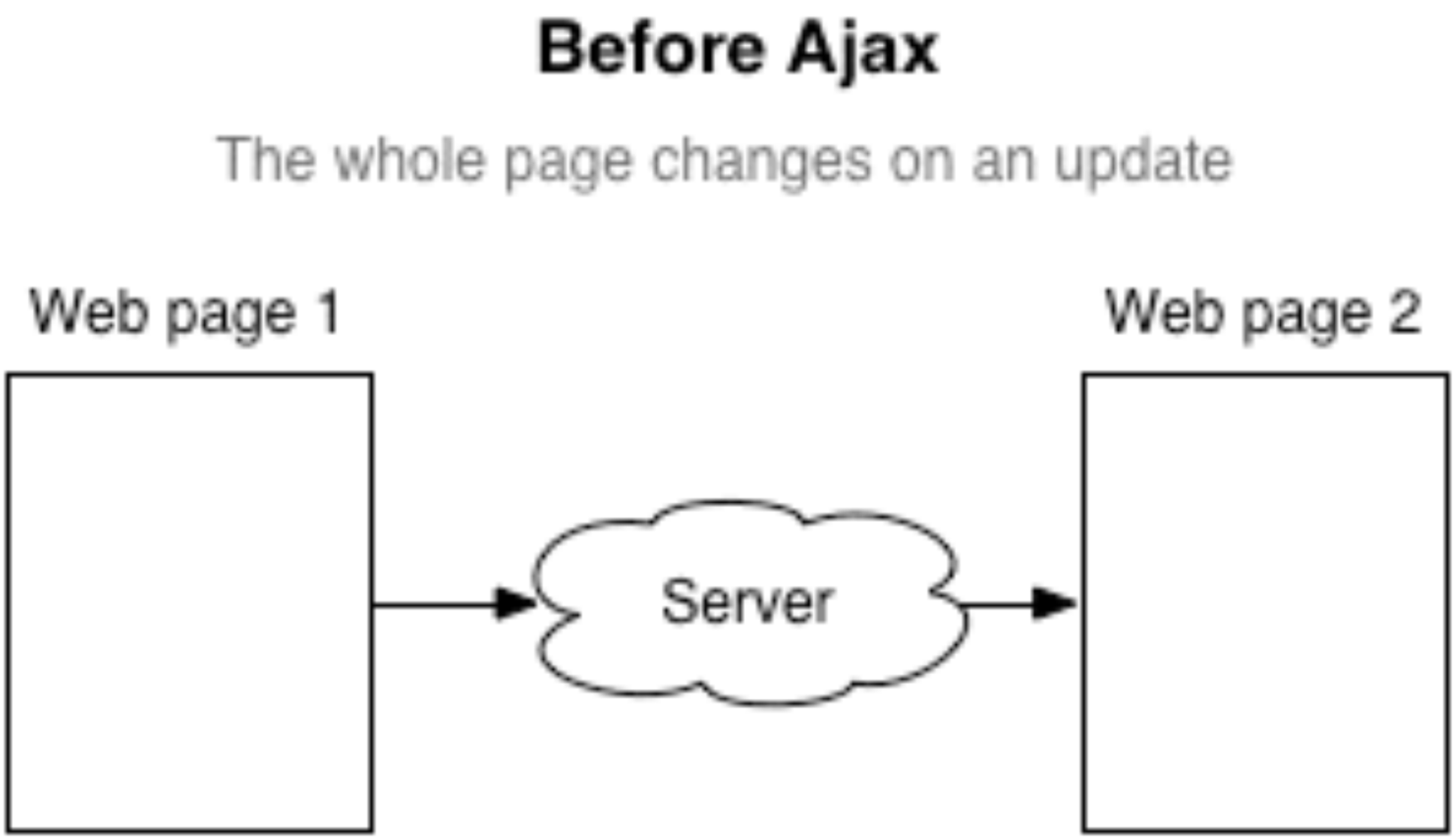
Ajax in action

- Google GMail
  - the Ajax "killer" application
    - allows users to edit and update their e-mails and inbox without hundred of page refreshes
- Google Maps
- Google

AJAX TECHNOLOGIES

- HTML and JavaScript
  - also called DHTML = Dynamic HTML
- XMLHttpRequest Object
- XML and JSON
- Server-side technology
  - Java servlets
  - PHP
  - ASP.NET

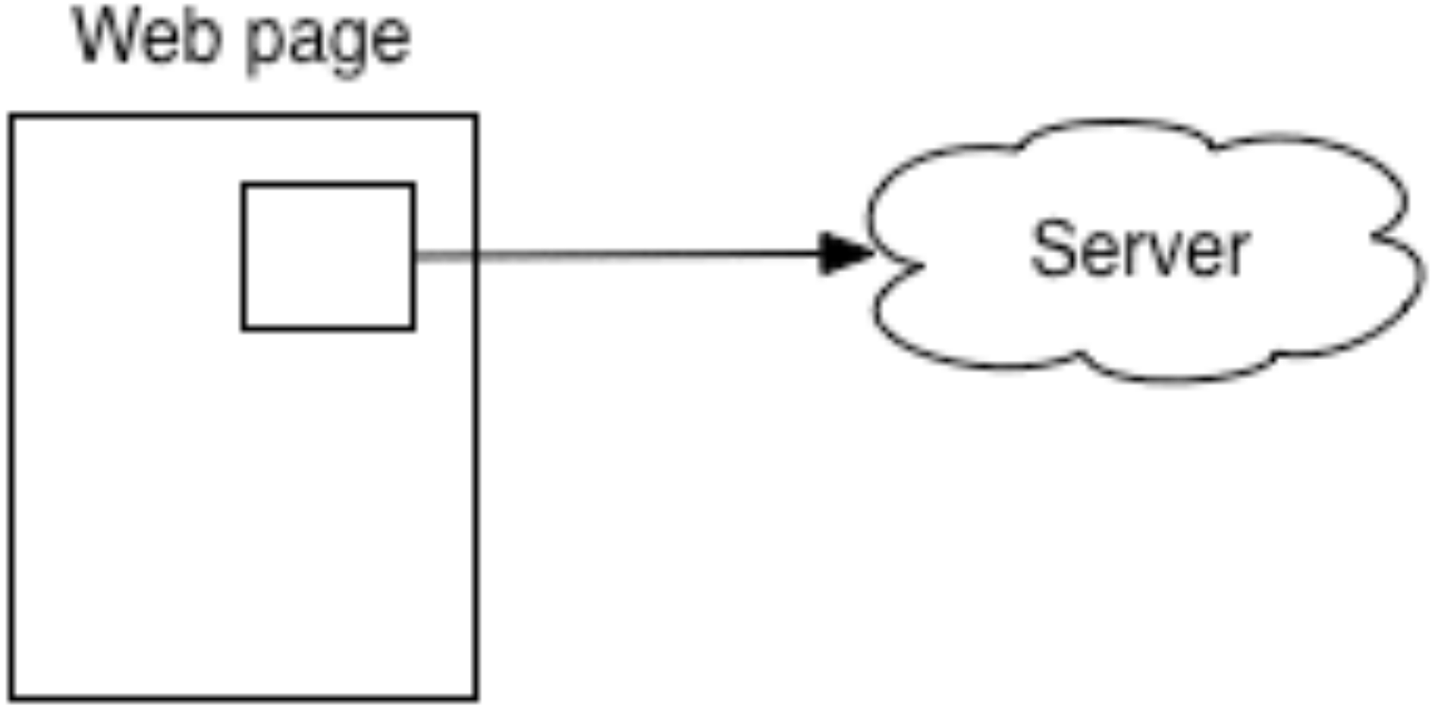
SYNCHRONOUS



Asynchronous Polling

With Ajax

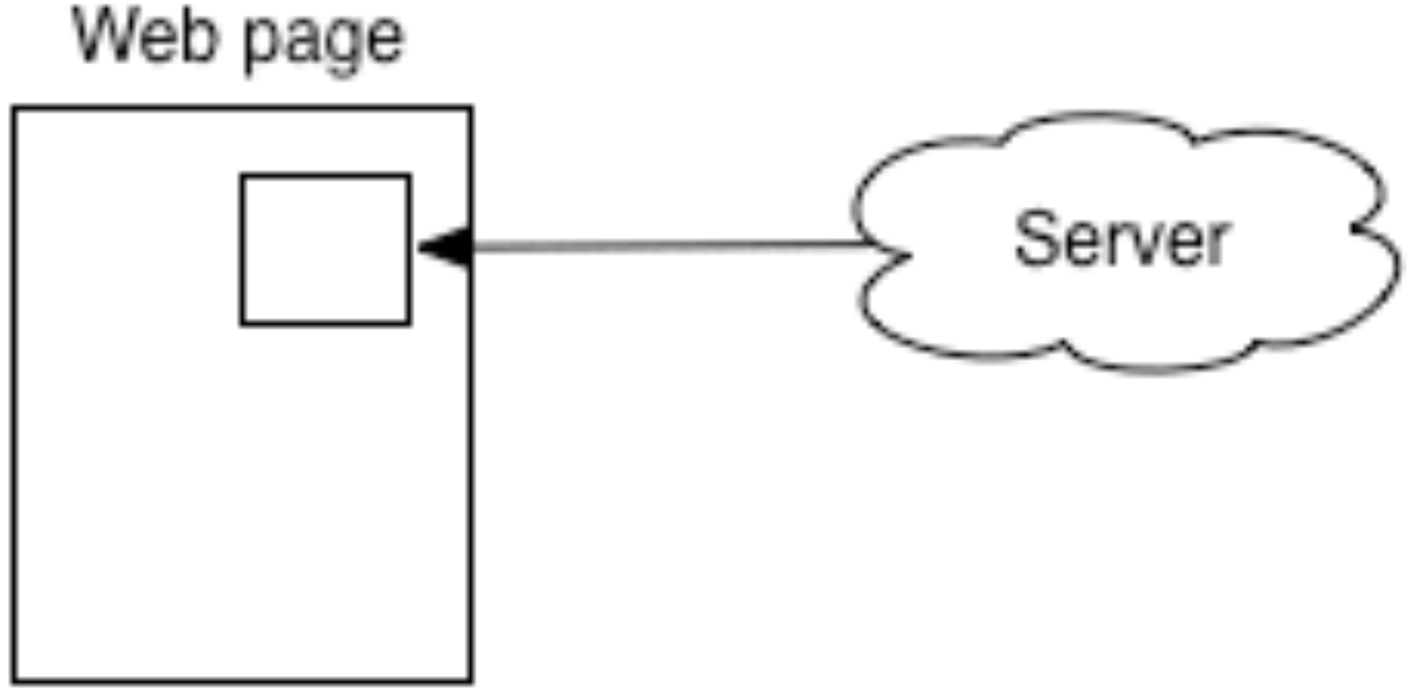
Only parts of the web page change on an update



Asynchronous Push

With Comet

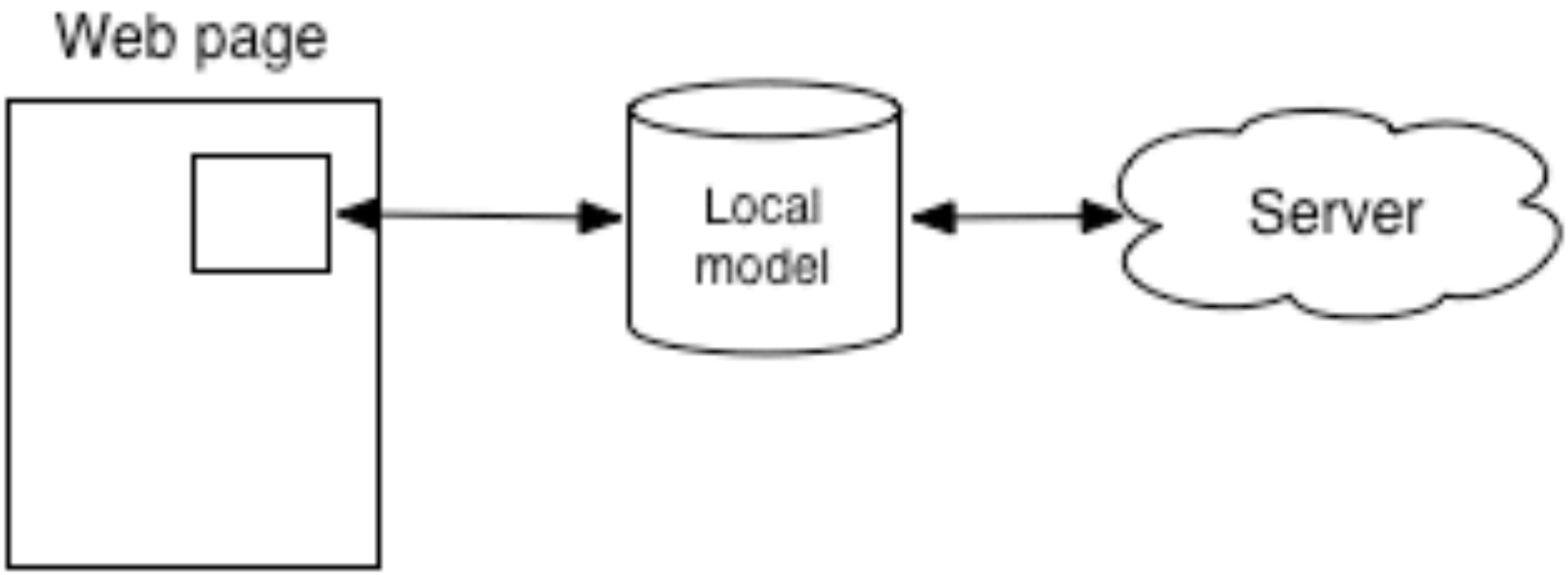
In realtime only parts of the web page change on an update



Asynchronous HTML5

With HTML5

The client manipulates local data that's then synced to the server



DEMO

quotes example

RESPONSE

- Sending data from server to client
- 3 possibilities
  - string
  - XML
  - JSON

JSON

- = JavaScript Object Notation
- = easier to use alternative to XML

XML

```
<friends>
        <friend>
            <name> Stijn </name>
            <status> online </status>
        </friend>
        <friend>
            <name> Miyo </name>
            <status> offline </status>
        </friend>
</friends>
```

JSON

```
{ “friends” : [
    {“name”:“Stijn”,“status”:“online”},
    {“name”:“Miyo”,“status”:“offline”}
] }
```

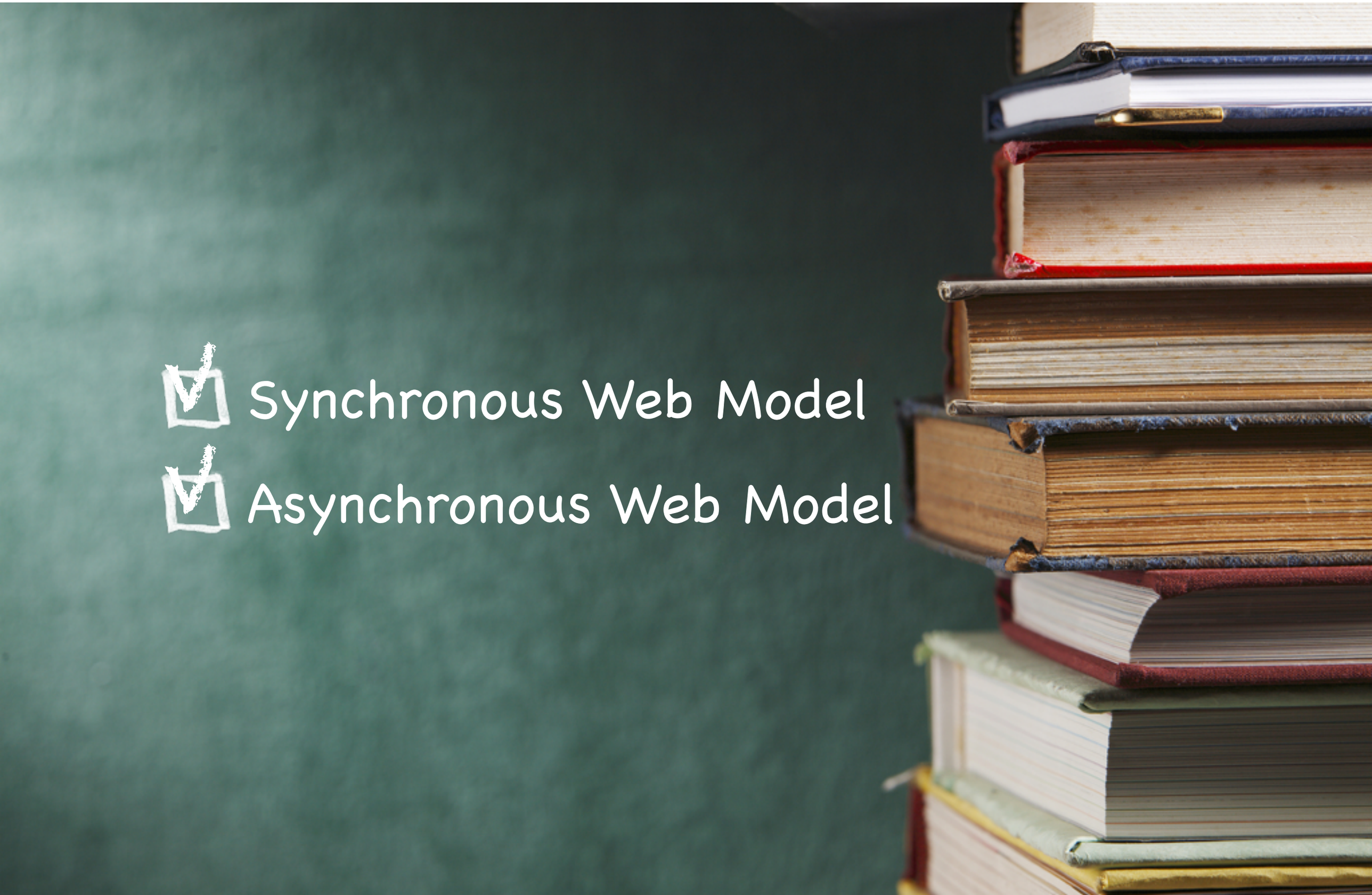
JSON

- Jackson
  - http://www.mkyong.com/java/jackson-2-convert-java-object-to-from-json/
    - add jars to lib folder (core, databind and annotations jars of jackson)
- GSON
- …

DEMO

POST example

Agenda



- [x] Synchronous Web Model
- [x] Asynchronous Web Model

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