

Webontwikkeling 4

Asynchronous Web Model (AJAX)

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AGENDA

- Synchronous Web Model
- Asynchronous Web Model



SYNCHRONOUS WEB MODEL

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

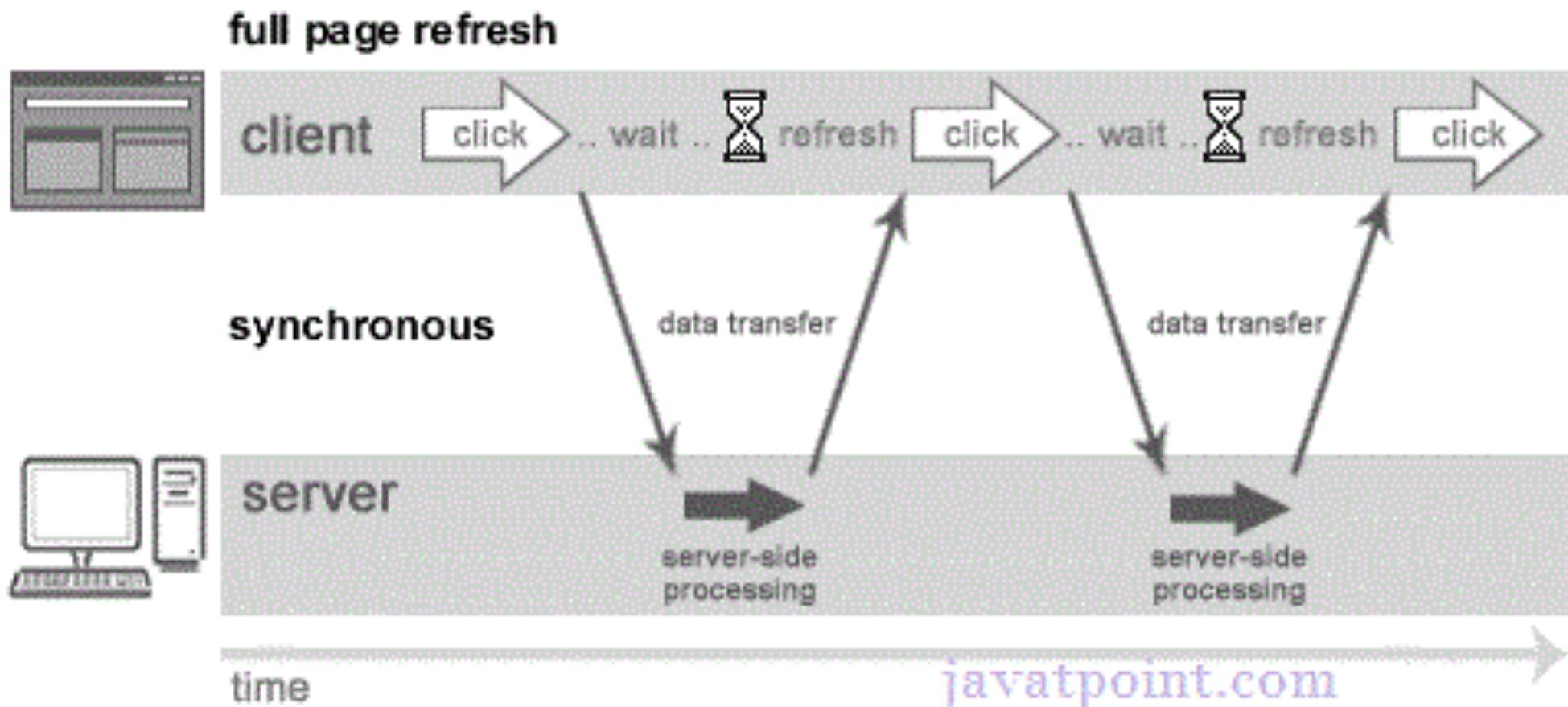


Synchronous: user has to wait!

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



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- Asynchronous Web Model

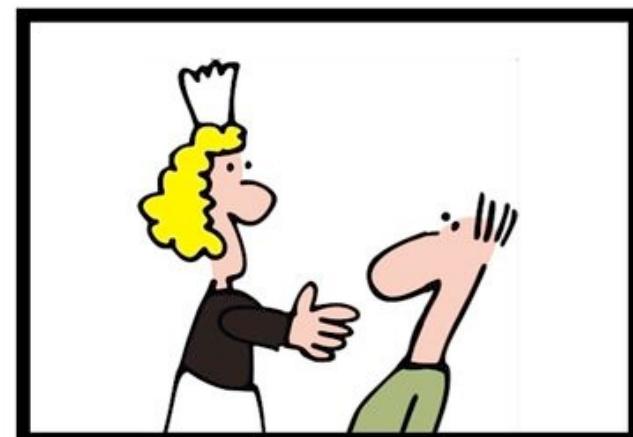
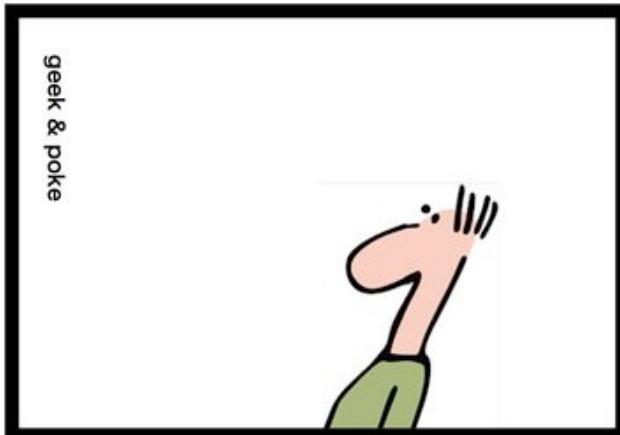


Aggregators Blogs Wikis
Folksonomy
Participation User Centered Joy of Use
Six Degrees Usability Widgets
Pagerank XFN
Recommendation Social Software FOAF
Sharing Collaboration Perpetual Beta Simplicity
Videocasting Podcasting Browser
Audio IM Video Design
Convergence Web 2.0 CSS Pay Per Click
UMTS Mobility 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
Modularity SOAP Microformats Syndication

AJAX



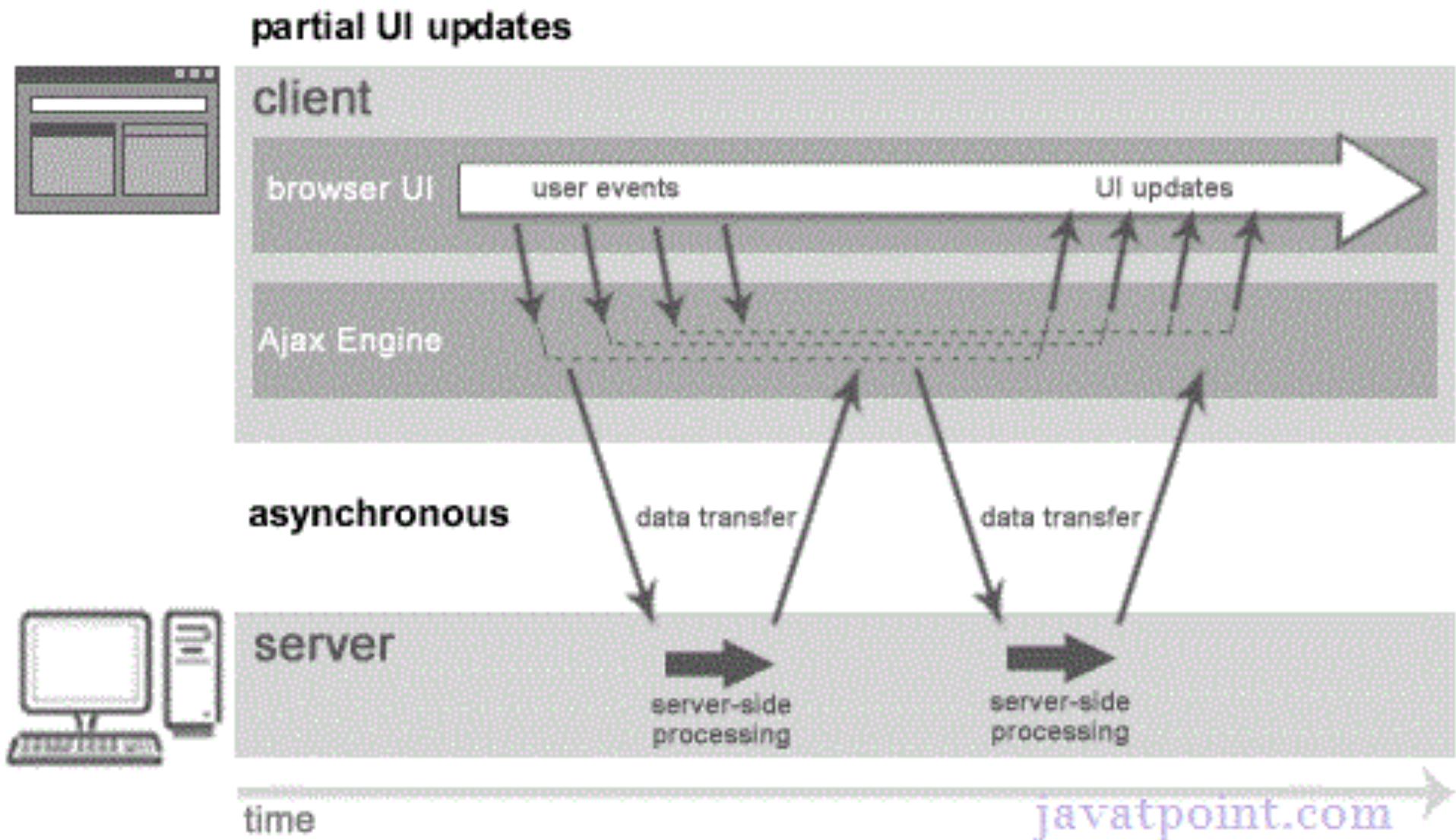
SIMPLY EXPLAINED

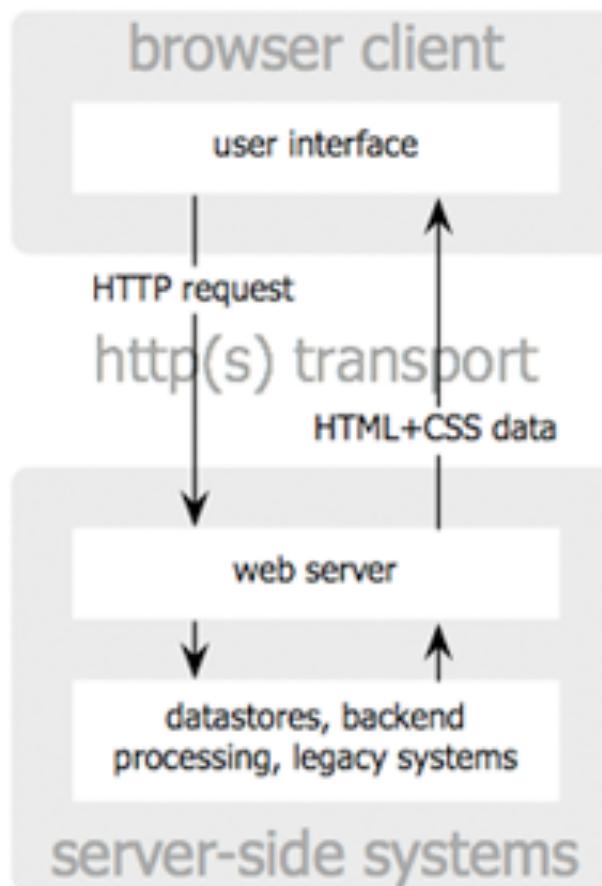


ASYNCHRONOUS WEB MODEL

- 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

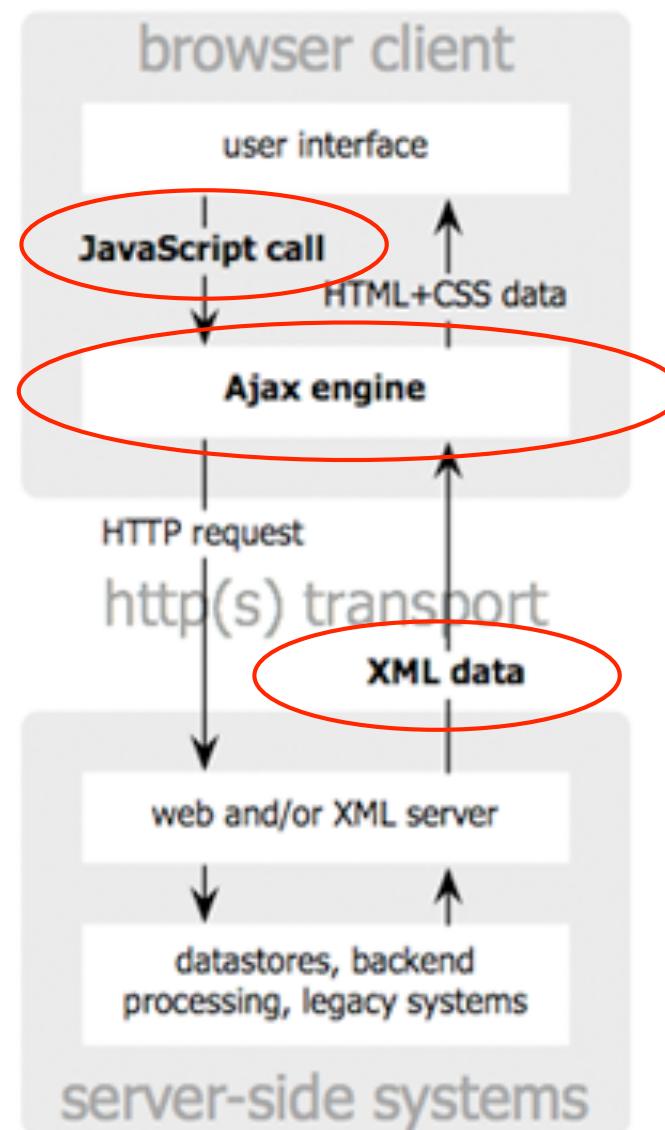
ASYNCHRONOUS WEB MODEL





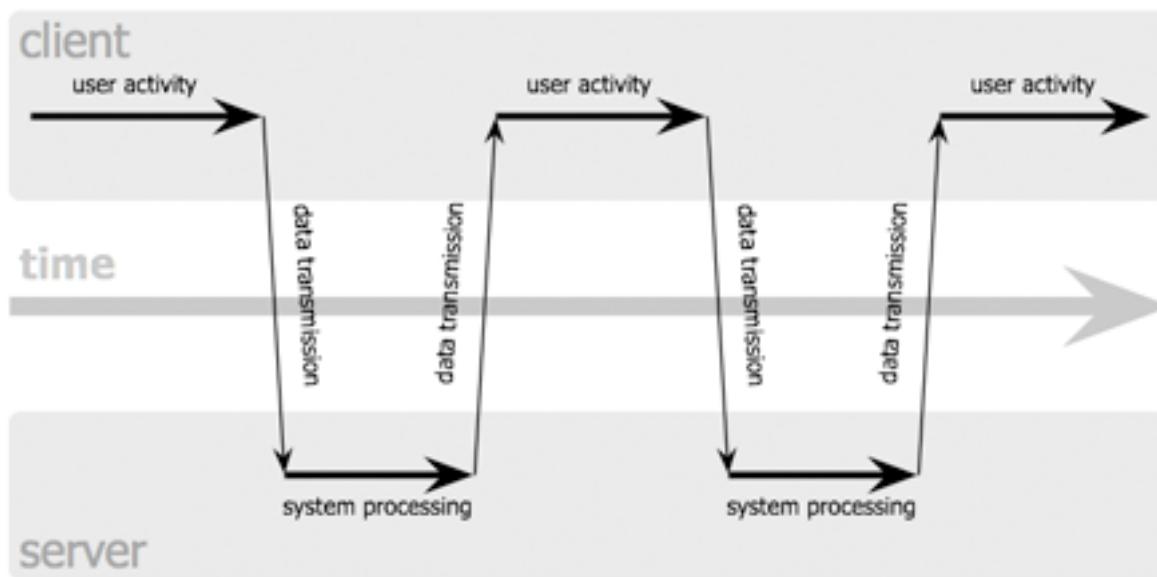
classic
web application model

Jesse James Garrett / adaptivepath.com

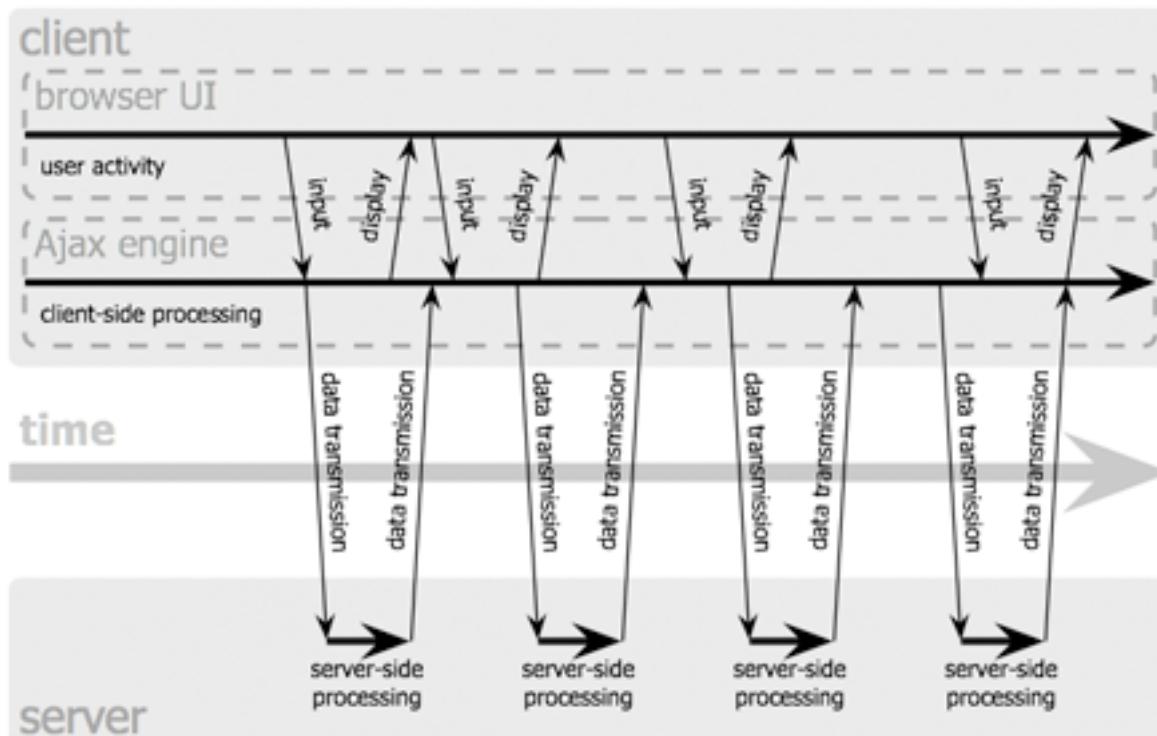


Ajax
web application model

classic web application model (synchronous)



Ajax web application model (asynchronous)



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



As you type, G

app		436,000,000 results
apple		28,400,000 results
apple store		12,400,000 results
apple.com		1,750,000 results
applebees		1,300,000 results
apple trailers		234,000 results
apple vacations		82,700,000 results
apple ipod		15,700,000 results
apple uk		

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AJAX TECHNOLOGIES

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

SYNCHRONOUS

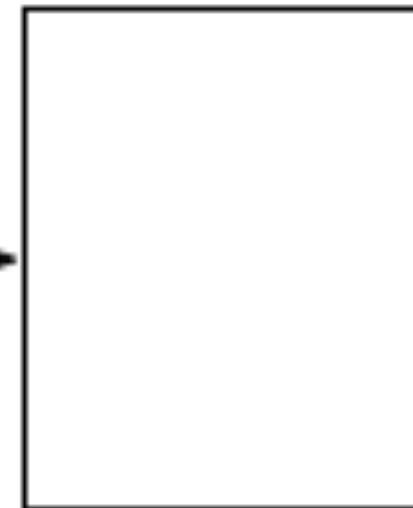
Before Ajax

The whole page changes on an update

Web page 1



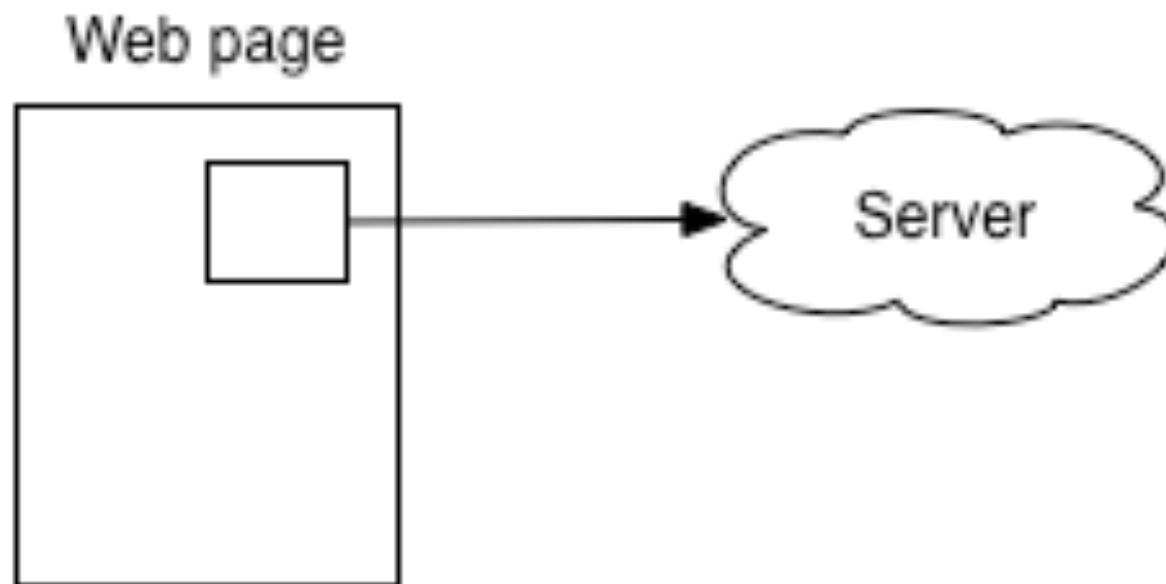
Web page 2



ASYNCHRONOUS POLLING

With Ajax

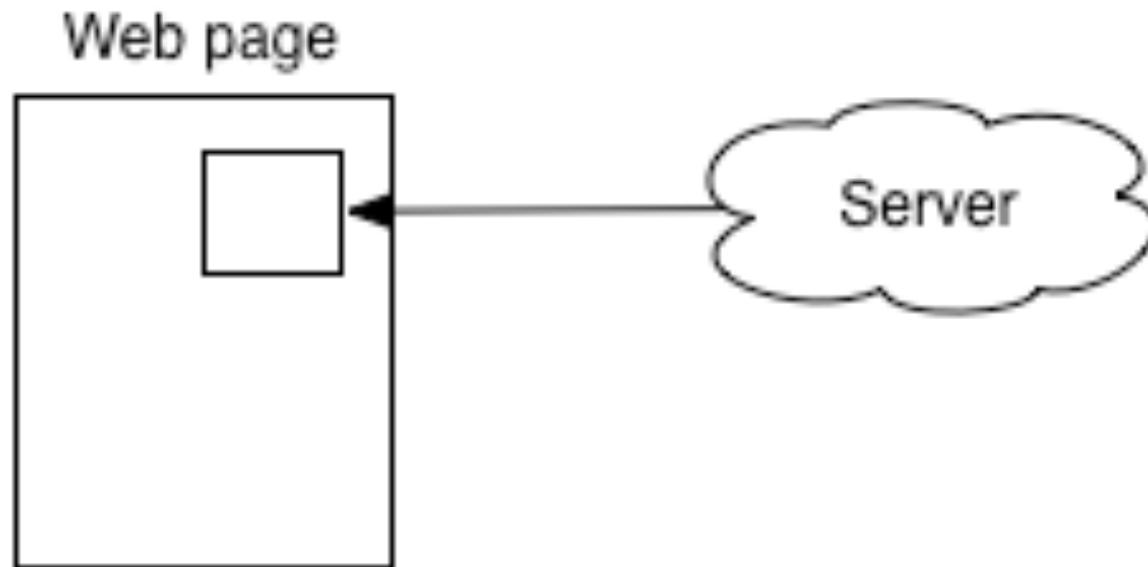
Only parts of the web page change on an update



ASYNCHRONOUS PUSH

With Comet

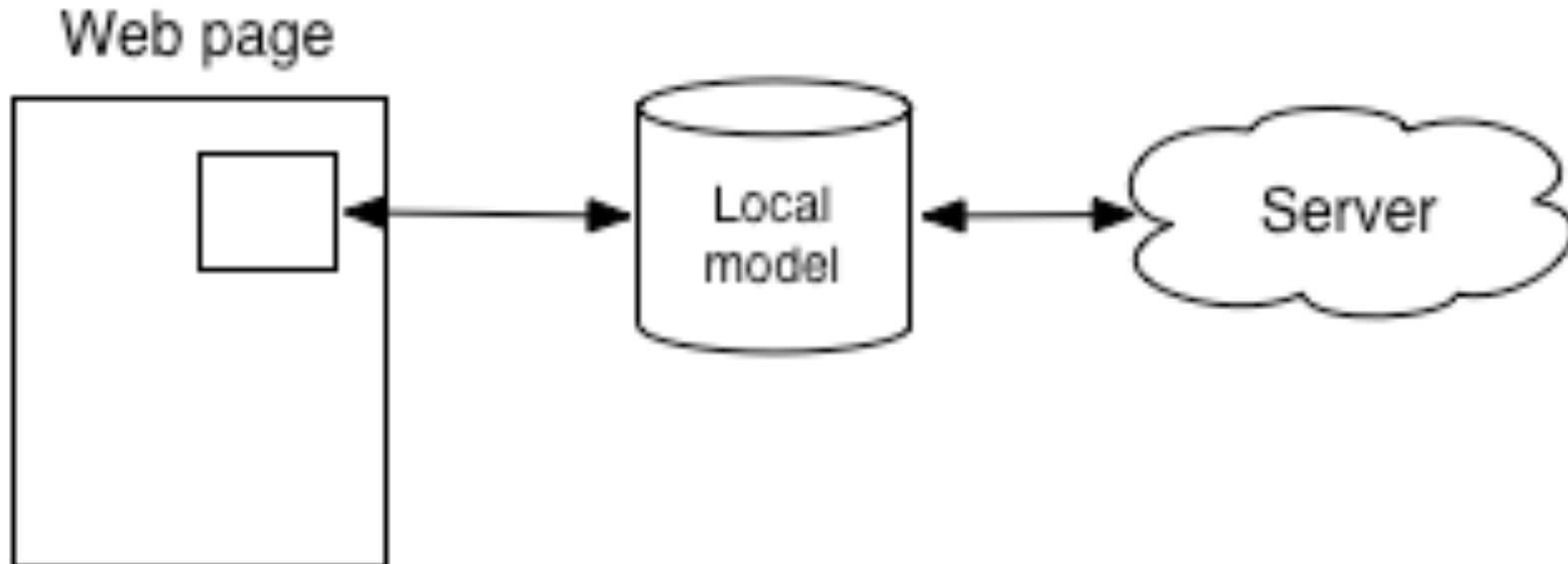
In realtime only parts of the web page change on an update



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

JSON

```
<friends>
```

```
  <friend>
```

```
    <name> Stijn </name>
```

```
    <status> online </status>
```

```
  </friend>
```

```
  <friend>
```

```
    <name> Miyo </name>
```

```
    <status> offline </status>
```

```
  </friend>
```

```
</friends>
```

```
{ "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



Synchronous Web Model



Asynchronous Web Model



REFERENCES

- <http://www.colgate.be/nl/products/householdcare/regular.shtml>
- http://geekandpoke.typepad.com/geekandpoke/2012/01/simply-explained.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+GeekAndPoke+%28Geek+And+Poke%29

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- <http://amix.dk/blog/post/19707>