

Ajax Showcases: „The Good, the Bad and the Ugly“

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	% Daily Value
AJAX Basics	25%
Real-life Showcases	70%
Overloaded Keynote Animations	200%
Finger pointing, whining & complaining	100%
Solutions	0%

controversial
+way too many Annotations

- ① A Historical Primer
- ② AJAX Basics, introducing XHR
- ③ AJAX vs. Web 1.0, 5 Examples
- ④ Diagnosing AJAX-needs
- ⑤ Warning: AJAX

Declaration

~~AAJAX~~ = Asynchronous
~~JavaScript and XML~~

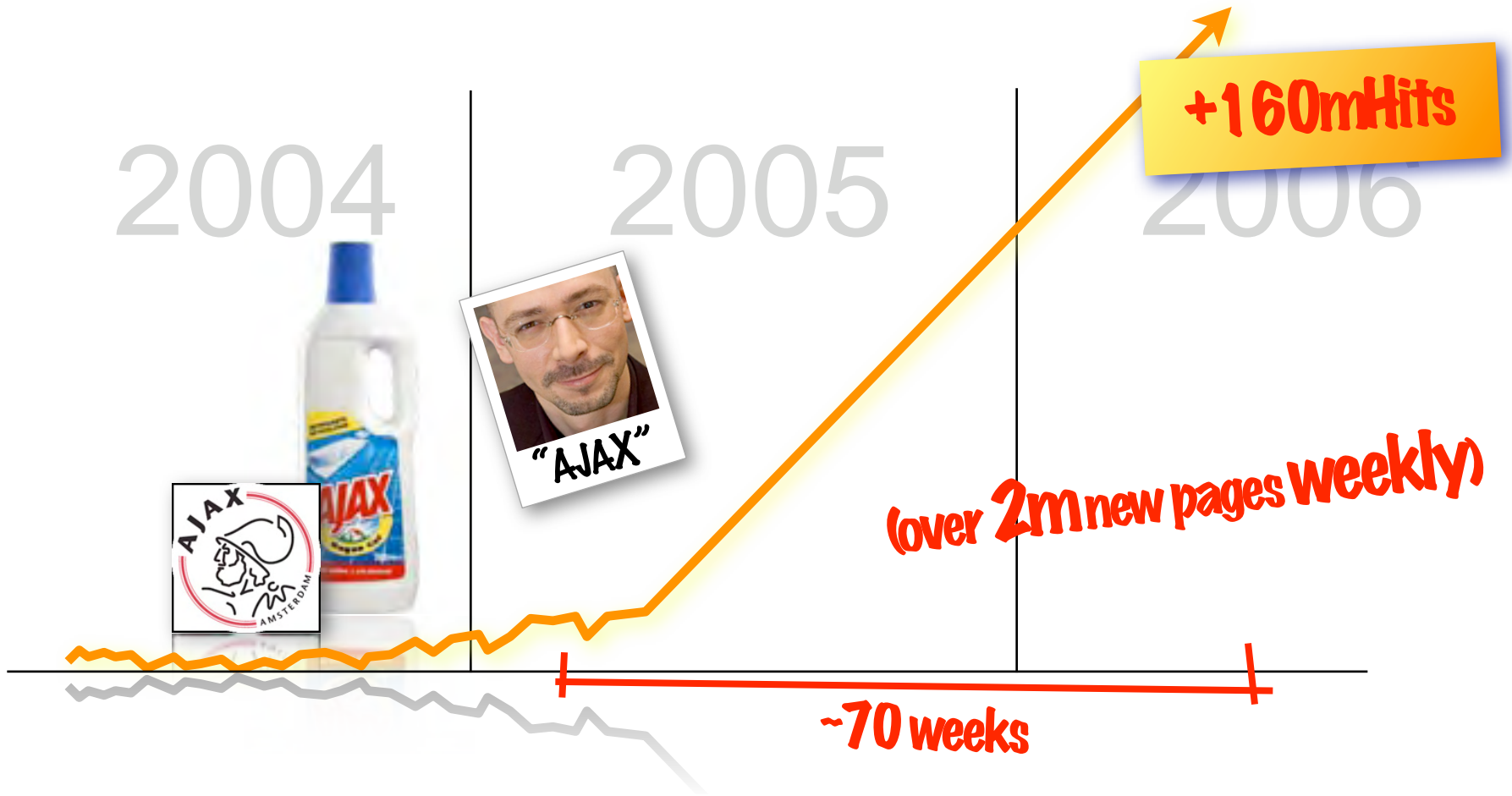
To be fair: JIG later discouraged the use of AJAX as an Acronym

*Jesse James Garret / AdaptivePath
Anno Domini 2005*

hmm... JS realistically is the only option, but in theory as scripting language would do

Doesn't make much sense now, does it ;)

well, thats an obvious one: AJAX works perfectly without XML



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*Declaration**

AJAX = DHTML + XHR**

*Arghh... can't get rid
of this "X"*

** only for the scope of this presentation
** aka XMLHttpRequest*

- Invented by Microsoft
- In IE since version 4 (released 30-sep-1997)

what!?! - 97?

1997



- Invented by Microsoft
- In IE since version 4 (released 30-sep-1997)
- Designed for Outlook on the web
- Initially an ActiveX control
- Mozilla created Javascript alternative, XHR
- IE7 has Mozilla compatibility for XHR

what!?! - 97?

- iframe
 - Hairy DOM manipulation
 - Much slower
 - Useful in IE if ActiveX is turned off
- flash
 - Not in all browsers
 - Generally not required
- dom + script
 - Useful for cross-domain Ajax
 - Inherent memory issues
- images
 - Possible, but impractical

*not as pretty,
works like a charm*

— Write only, though

Format options

- HTML (mostly dynamically inserted server presentation)
- XML (API is hard to use, verbose)
- JSON (Great API, Concise and Fast)
- Javascript (Very Powerful, care required)
- ...really anything you are willing to parse

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Ajax vs Web 1.0: Gmail vs. Yahoo mail



...VERSUS...

The screenshot shows the Gmail web interface. At the top, it says "Welcome to CRX CQ DAM mymail coop" and "david.nuescheler@gmail.com | Settings | Help | Sign out". The left sidebar contains "Compose Mail", "Inbox", "Starred", "Chats", "Sent Mail", "Drafts", "All Mail", "Spam (1397)", "Trash", "Contacts", and "Quick Contacts". The main area shows a list of emails with columns for checkboxes, sender names, subjects, and dates. A red circular stamp with the text "AJAX INSIDE" is overlaid on the email list.

The screenshot shows the Yahoo Mail web interface. At the top, it says "Welcome to CRX CQ DAM mymail coop" and "david.nuescheler@yahoo.com". Below the header are navigation links for "Yahoo! My Yahoo! Mail" and "Make Yahoo! your home page". A large "FREE" banner for "What is Your Favorite ScreenSaver?" is prominent, featuring images of "3D Dolphins", "Waterfalls v3.0", "Aquarium v2.0", and "Lightning Storm". Below this are navigation tabs for "Mail", "Addresses", "Calendar", and "Notepad". The main area shows an "Inbox" with a table of messages. A search bar is visible at the top right.

Sender	Subject	Date	Size
Trend Micro Newsletters Editor	Trend Micro First Line of Defense - 16 June, 2006	Fri Jun 16, 2006	24k
Silvan tilllate.com	tilllate-News: Hirnzellen-Mangel	Tue Jun 13, 2006	35k
Silvan tilllate.com	tilllate-News: WM-Fieber	Wed Jun 07, 2006	48k
Napster	Napster: New Roller Sk8n' & Bonnaroo 2006 Playlists	Tue Jun 06, 2006	38k
Trend Micro Newsletters Editor	Trend Micro First Line of Defense - 2 June, 2006	Fri Jun 02, 2006	24k
Dave I tilllate.com	tilllate.triff... Kurt Aeschbacher	Tue May 30, 2006	46k

Ajax vs Web 1.0: Gmail vs. Yahoo mail

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gmail ^{★ selected ★} Innovation

Conversations

2GB+

Hidden Quotes

Keyboard shortcuts

Contact Management and completion

Spellchecking

Responsive UI

Chat

Auto Save

Sluggish login

AJAX
INSIDE

AJAX
INSIDE

AJAX
INSIDE

AJAX
INSIDE

Ajax vs Web 1.0: Gmail vs. Yahoo mail



GET /mail/
HTTP/1.1 200

GET /mail/?ver=e29b7fc0c3f64770.
HTTP/1.1 200, length: 153k, gzipped

GET /mail/?search=inbox...
HTTP/1.1 200, length: 7k, gzipped

GET /mail/?name=contacts...
HTTP/1.1 200, length: 25k, gzipped

GET /mail/channel/bind?...
HTTP/1.1 200, length: ~350k, chunked

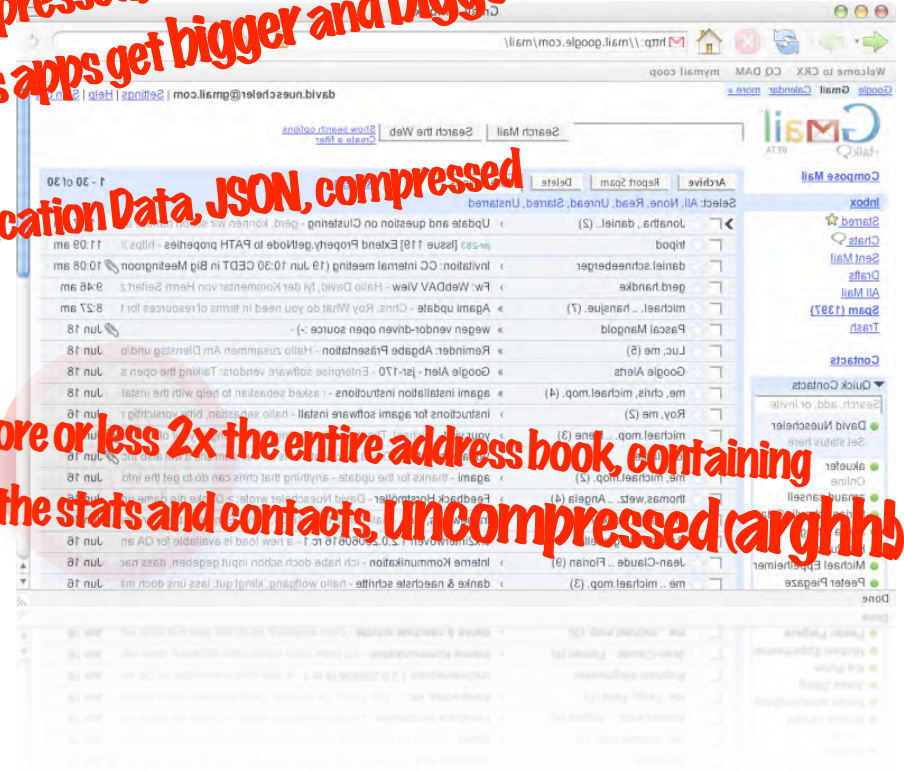
POST /mail/channel/bind?...
HTTP/1.1 200

Containing the Application Code, Stripped and compressed, (those js apps get bigger and bigger)

Application Data, JSON, compressed

More or less 2x the entire address book, containing all the stats and contacts, uncompressed (arghh)

Roughly 35reqs, 15s, +700kB



Note to self: clean your +1500 contacts

Ajax vs. Web 1.0: Google Calendar vs. Yahoo calendar



...VERSUS...

Google Calendar interface showing a weekly view for June 2006. The interface includes a navigation bar, a search box, and a main calendar grid with various events. A red circular badge with the text "AJAX INSIDE" is overlaid on the calendar grid.

Yahoo! Calendar interface showing a monthly view for June 2006. The interface includes a navigation bar, a search box, and a main calendar grid with various events. A red circular badge with the text "AJAX INSIDE" is overlaid on the calendar grid.

Ajax vs Web 1.0: Google Calendar vs. Yahoo Calendar

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gcal ^{selected} innovation

AJAX
INSIDE

Responsive Drag and Drop UI

AJAX
INSIDE

Quick Add

AJAX
INSIDE

Excellent Sharing & Subscribe

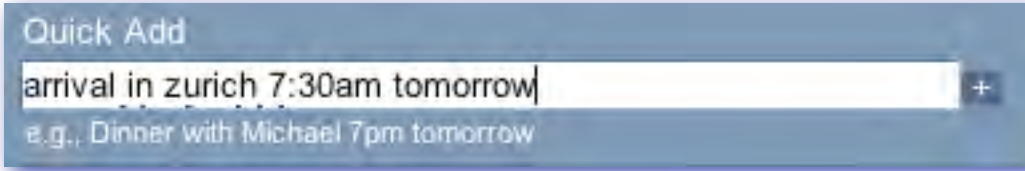
API!

Maps Integration

AJAX
INSIDE

Very Sluggish login

Ajax vs. Web 1.0: Google Calendar vs. Yahoo calendar



Posting "arrival ..." back to the server

POST /calendar/compose
HTTP/1.1 200, short, gzipped

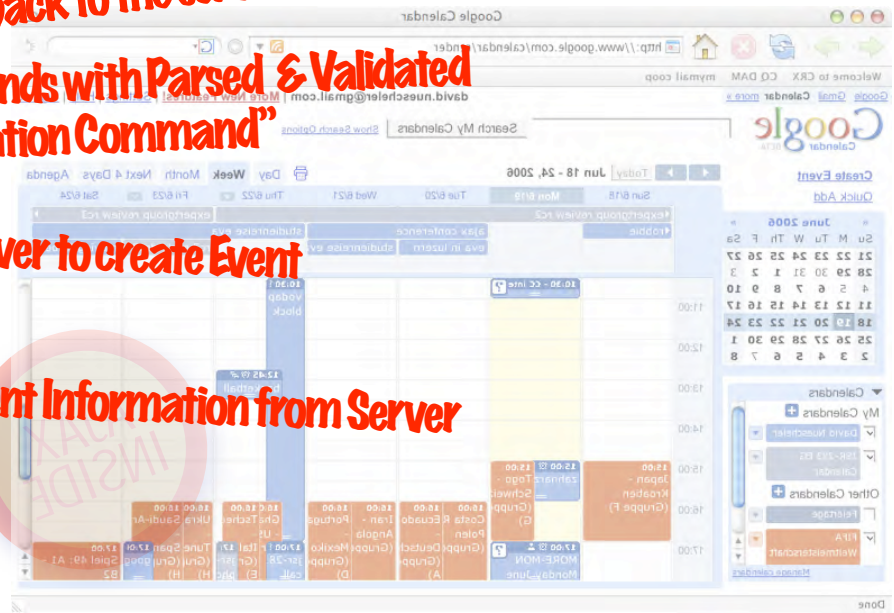
Server responds with Parsed & Validated "Event Creation Command"

POST /calendar/event
HTTP/1.1 200, short, gzipped

Instruct Server to create Event

POST /calendar/load HTTP/1.1
HTTP/1.1 200, short, gzipped

Get Event Information from Server



Ajax vs. Web 1.0: Google Suggest vs. Google

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...VERSUS...

God... | http://www.google.com/webhp?complete=1

Welcome to CRX CQ DAM mymail coop

Personalized Home | Search History | My Account | Sign out

Google Suggest LABS

Web Images Groups News Froogle Maps more »

As you type

ajax amsterdam	502,000 results
ajax fc	710,000 results
ajax ontario	275,000 results
ajax grips	8,860 results
ajax football club	573,000 results
ajax public library	40,500 results
ajax football	454,000 results
ajax soccer	437,000 results
ajax pickering transit	10,700 results
ajax transit	27,100 results

Advanced Search | Performance | Language Tools

Done



Google | http://www.google.ch/

Welcome to CRX CQ DAM mymail coop

Personalized Home | Sign in

Google Switzerland

Web Images Groups News more »

Google Search | I'm Feeling Lucky

Search: the web pages from Switzerland

Google.ch offered in: Deutsch Français Italiano Rumantsch

Advertising Programs - Business Solutions - About Google - Go to Google.com

©2006 Google

Done

★ selected ★
suggests inno

Free Market Research Information



Search Term Completion

Ajax vs. Web 1.0: Google Suggest vs. Google



Web Images Groups News Froogle Maps more »

Google Search | I'm Feeling Lucky

GET /complete/search?hl=en&js=true&qu=a HTTP/1.1
HTTP/1.1 200, short, gzipped

GET /complete/search?hl=en&js=true&qu=ajax HTTP/1.1
HTTP/1.1 200, short, gzipped

Very readable URL's

ajax amsterdam	
ajax amsterdam	502,000 results
ajax fc	710,000 results
ajax ontario	275,000 results
ajax grips	8,860 results
ajax football club	573,000 results
ajax public library	40,500 results
ajax football	454,000 results
ajax soccer	437,000 results
ajax pickering transit	10,700 results
ajax transit	27,100 results

**Note to self:
Is AJAX a "Write Only" topic?**

**text/html? excellent
for debugging**

```
HTTP/1.1 200 OK
Content-Type: text/html; charset=utf-8
Content-Encoding: gzip
Server: Auto-Completion Server
Cache-Control: private, x-gzip-ok=""
Content-Length: 207
Date: Tue, 20 Jun 2006 14:48:26 GMT
```

```
sendRPCDone(frameElement, "ajax ", new Array("ajax amsterdam",
"ajax fc", "ajax ontario", "ajax grips", "ajax football club",
"ajax public library", "ajax football", "ajax soccer", "ajax
pickering transit",
"ajax transit"), new Array("502,000 results", "710,000
results", "275,000 results", "8,860 results", "573,000
results", "40,500 results", "454,000 results", "437,000
results", "10,700 results", "27,100 results"), new Array(""))
```

**JS for XSS (i guess)!? ...but why not
JSON?**

Ajax vs. Web 1.0: AJAX Login vs. Login

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...VERSUS...

JamesDam.com = AJAX Login System Demo

http://www.jamesdam.com/ajax_login/login.html

Welcome to CRX CQ DAM mymail coop

Demonstration

Username:

Password:

Enter your username and password to log in.

Comments:

AJAX INSIDE

Source

- login.html
- login.css
- login_controller.js
- login_presentation.js
- xml_http_request.js
- md5.js
- login.php

Done

Done

Google Accounts

https://www.google.com/accounts/ServiceLogin?service=cl&passive

Welcome to CRX CQ DAM mymail coop

Google Home | Sign In

Google Accounts

Access Google services with your Google Account.

A Google Account is the key that unlocks the world of Google. [Learn more.](#)

With just your email address and chosen password, you can access numerous Google services, including:

- Google Alerts**
Receive news and search results via email
- Google Groups**
Create mailing lists and discussion groups
- Personalized Search**
Get the search results most relevant to you
- Gmail**
A Google approach to email
- Google Shopping List**
Shop smarter with wishlists of your favorite products

Sign in to Google Calendar with your **Google Account**

Email:

Password:

Remember me on this computer.

[Forgot your password?](#)

Don't have a Google Account?
[Create an account now](#)

Do you already use any of these services?
 If so, you already have a Google Account. You can sign in on the right.

©2005 Google - [Google Home](#) - [Terms of Service](#) - [Privacy Policy](#) - [About Google Accounts](#)

Done

Done

Advantages

- User does not need to refresh the page to login.
- User is notified *instantly* on incorrect username/password combination.
- Overall user experience is more ~~useless~~ **confusing** *ready or not :)*
- Password is not sent in plain text *ever* (more secure than traditional system) **not really!**
- Javascript convenience with server-side security (uses PHP/MySQL).
- Uses one-time use random seed to hash the password before sending (making interceptions ~~useless~~) **as useful as ever ;)**

Disadvantages

- System is more prone to brute force attacks. **Really?**
- System can be minimized by adding a delay after a certain number of attempts per username or per client. **will**
- User ~~may~~ expect a login button.
 - One could still be added without reloading the page.
- Older versions of Safari cannot disable a password field.
- **This code uses the MD5 encryption algorithm, which has since been proven to be insecure. If you use this code, I strongly recommend you switch to a more secure encryption algorithm, such as SHA-1.** For sites where security is not crucial, MD5 should suffice.



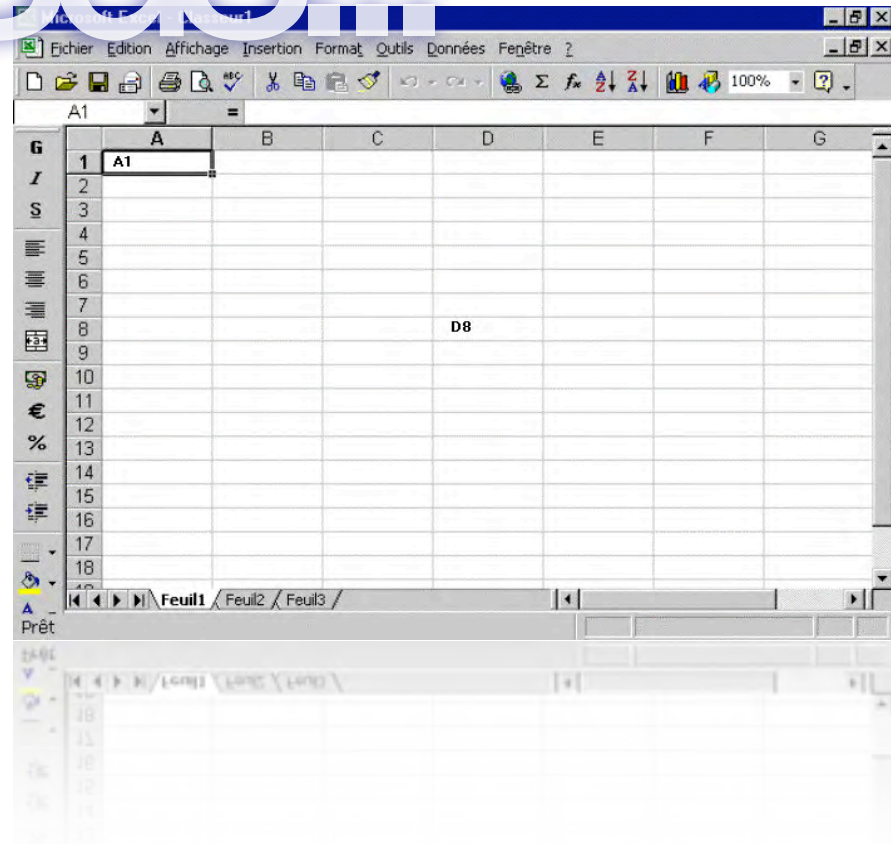
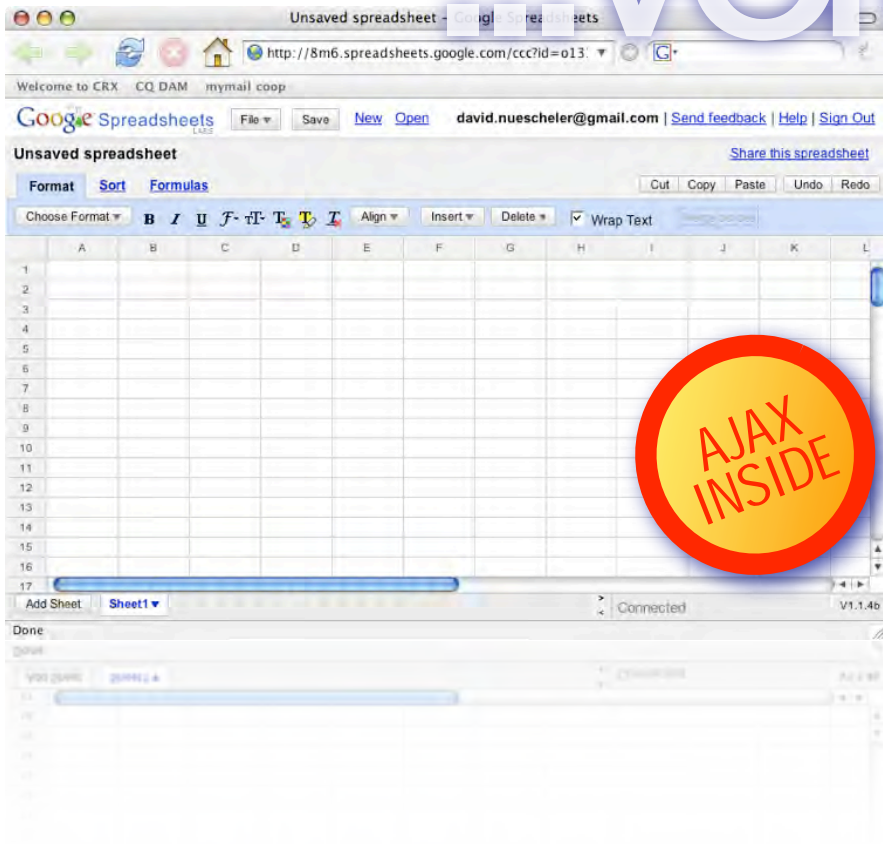
ajax login inno ^{selected}

**david's personal
meaningless
comments**

Ajax vs. Web 1.0 (really?): Google Spreadsheets vs. MS Excel

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versus



Ajax vs Web 1.0: Google Spreadsheets vs. MS Excel

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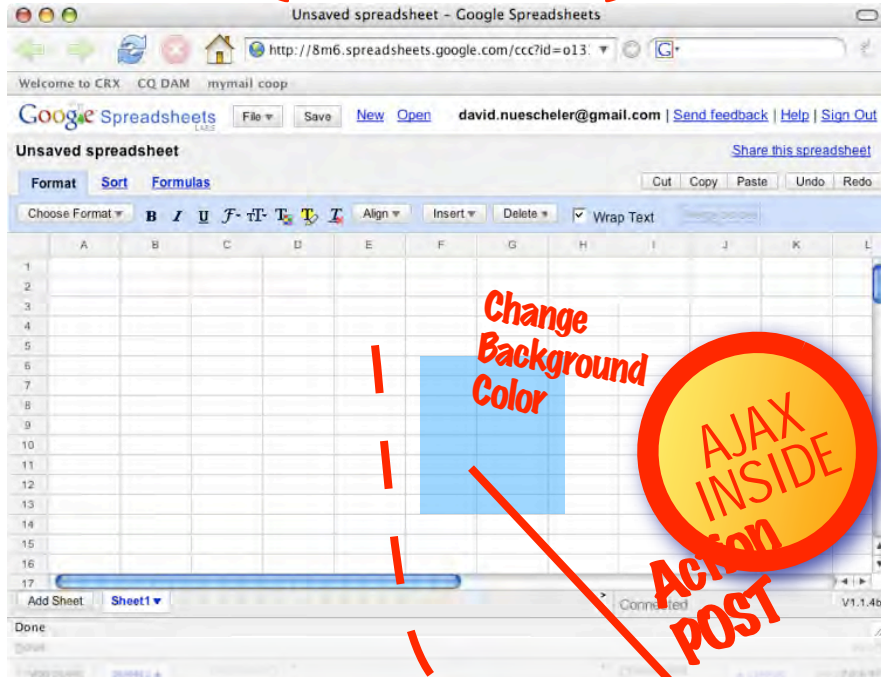
	Free
	Concurrent Users
	Browser Based / Platform Independent
	Server Based



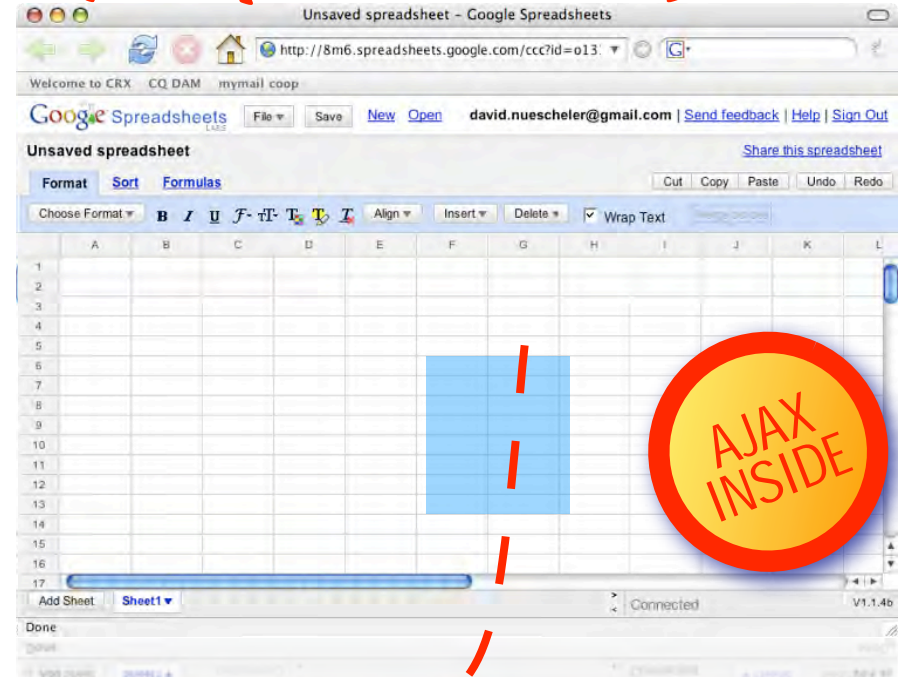
Ajax vs. Web 1.0 (really?): Google Spreadsheets vs. MS Excel



tobi's computer ʎɹɟuɔɹɹɔɹ ɹɹɹɹɹ



my computer ʎɹɟuɔɹɹɔɹ ʎɹɹ



*Polling for changes using a
chunked Response
(very clever!!)*

*Change
Background
Color*

*ACTION
POST*

dito



Serverfarm at google

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- ⑤ **Warning: AJAX**

Diagnosing AJAX-needs of your webapplication: Form Validation



Please enter a valid web page including the protocol and file path (i.e.
http://www.google.com/index.html)

URL: Please enter a valid URL.

Please enter credit card number, but make sure you don't use a real one. This form performs check-sum validation, but does not check that the card number is a real card number.

Credit Card#:

Please enter a valid e-mail address.

E-Mail:

Please enter your name. (This field is here to allow the validation on the e-mail field to run)

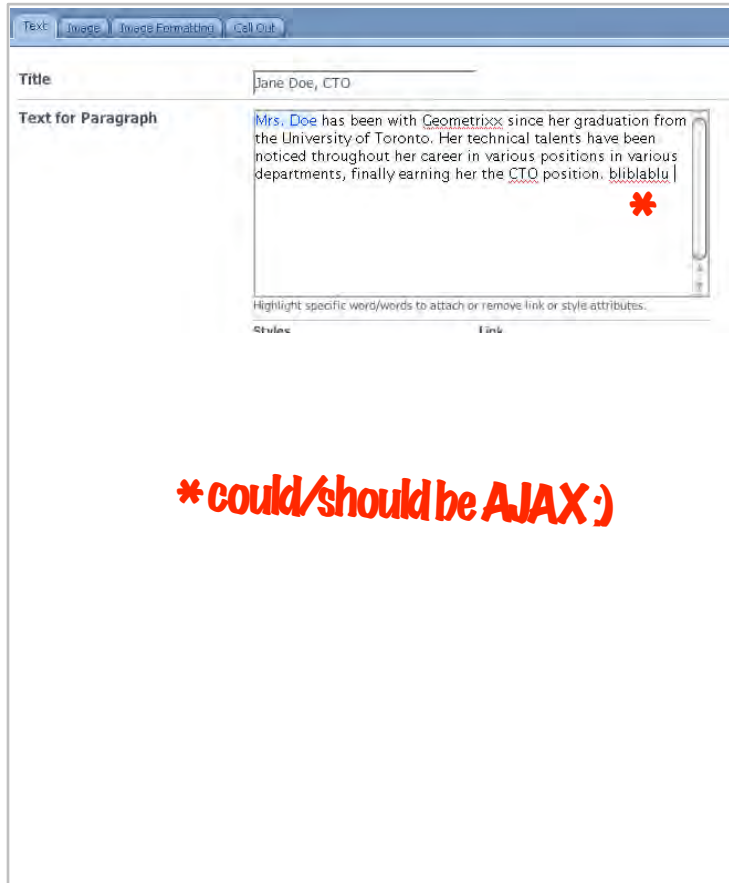
Name:

- Only applies to validation that cannot be implemented client-sided
- Must additionally validate on submit
- Public Example: <http://getahead.ltd.uk/dwr/examples/validation>

**Only checks for Format, could be client-sided...
(How about an additional check for the existence of the URL?)**

Diagnosing AJAX-needs of your webapplication: Spellchecker

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- Spellchecking “as you type”
- Special case of input validation
- **Good public example?**



The screenshot shows the Google Labs Suggest interface. The search bar contains 'ajax amsterdam'. Below the search bar, a list of suggestions is displayed with the number of results for each. The suggestions are:

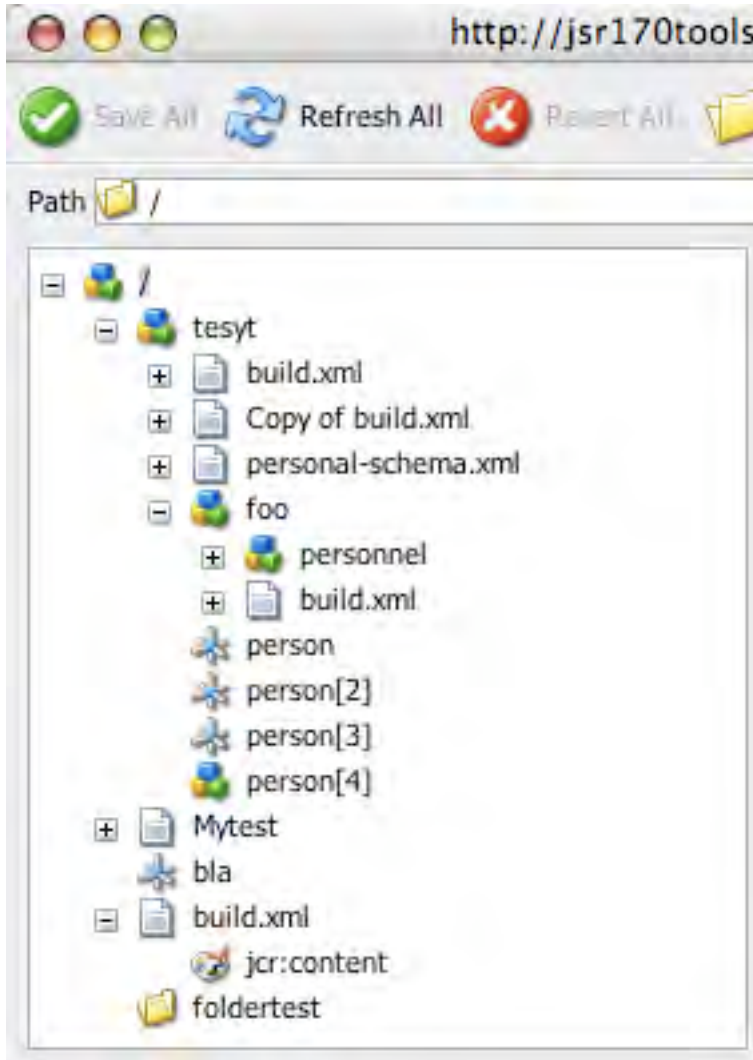
Suggestion	Results
ajax amsterdam	502,000 results
ajax fc	710,000 results
ajax ontario	275,000 results
ajax grips	9,860 results
ajax football club	573,000 results
ajax public library	40,500 results
ajax football	454,000 results
ajax soccer	437,000 results
ajax pickering transit	10,700 results
ajax transit	27,100 results

***Posterchild
AJAX App***

- Completion for very large sets only
- Public Example:
<http://www.google.com/webhp?complete=1>

Diagnosing AJAX-needs of your Webapplication: Tree Control

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- Dynamic Reload of Level on click
- Applicable to practically every Tree.
The bigger, the more important
- Public Example:
<http://jcr.day.com>

*Almost Dangerously Flexible,
Transports HTML*

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1

back button

Make it **WORK** the same
as in Web 1.0

2

accessibility

Some people don't
have JS enabled...

3

indexing

Search Engines don't
do JS either!

4

bookmarks

Make bookmarks
work wherever it
makes sense

5

network traffic

Don't forget:
Keep-Alive, Gzip & the
friendly caches

Thank you.

*Slides? Questions? Comments?
Send me an email
david.nuescheler@day.com*