

Yahoo! vs. Yahoo!: Case Studies

Web Builder 2.0 Las Vegas

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Platform Engineering Group
Yahoo! Inc.

Slides

<http://nate.koechley.com/talks/2006/12/webbuilder/>

Contact

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<http://developer.yahoo.com/yui>

Koechley is pronounced "Kek'lee"



WEBBuilder2.0

My Perspective

- Charter member of Web Development team at Yahoo!
- In the trenches and in management
- Currently:
 - Yahoo! User Interface (YUI) Library team
 - Senior Front-End Engineer, Technical Evangelist, Design Liaison, YUIBlog Editor
 - Responsible for Yahoo! Browser Support specs
- Strategy and Direction

WEBBuilder^{2.0}

YUI: The Yahoo! User Interface Library



Yahoo! UI Library (YUI)

Get Started

- [Home](#)
- [About Us](#)
- [Developer Network Blog](#)
- [Frequently Asked Questions](#)
- [Support Communities](#)
- [Working Examples](#)

Developer Central

- [Browser Based Auth](#)
- [Design Pattern Library](#)
- [JavaScript Developer Center](#)
- [Flash Developer Center](#)
- [.NET Developer Center](#)
- [PHP Developer Center](#)
- [Python Developer Center](#)
- [Ruby Developer Center](#)
- [Search SDK](#)
- [Security Best Practices](#)

Yahoo! User Interface Library

The Yahoo! User Interface (YUI) Library is a set of utilities and controls, written in JavaScript, for building richly interactive web applications using techniques such as DOM scripting, DHTML and AJAX. The YUI Library also includes several core CSS resources. All components in the YUI Library have been released as open source under a [BSD license](#) and are free for all uses. [Download](#) the entire library, its documentation and examples from Sourceforge.

The library's developers blog [at the YUI Blog](#) and the YUI Library community exchanges ideas at [ydn-javascript on Yahoo! Groups](#).

On This Page:

- [Getting Started](#)
- [Licensing](#)
- [Download](#)
- [Components](#)
- [Design Patterns](#)
- [Articles](#)
- [Cheat Sheets](#)
- [Support & Community](#)

YUI Library Utilities:

- [The YAHOO Global Object](#)
- [Event Utility](#)
- [DOM Collection](#)
- [Connection Manager](#)
- [Drag and Drop Utility](#)
- [Animation Utility](#)

YUI Library CSS Tools:

- [CSS Page Grids](#)
- [CSS Fonts](#)
- [CSS Reset](#)

YUI Library Controls:

- [AutoComplete](#)
- [Calendar](#)
- [Container](#) (including Module, Overlay, Panel, Tooltip, Dialog, SimpleDialog)
- [Logger](#)
- [Menu](#)
- [Slider](#)
- [TreeView](#)

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YUI: The Yahoo! User Interface Library

Drag and Drop

[Drag and Drop](#) > [YAHOO.util.DDProxy](#)

- [Tree View](#)
- [Element Index](#)

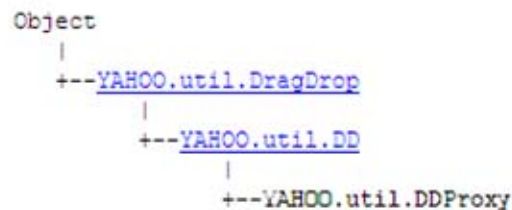
Classes

[YAHOO.util](#)
[YAHOO.util.DD](#)
[YAHOO.util.DDProxy](#)
[YAHOO.util.DDTarget](#)
[YAHOO.util.DragDrop](#)
[YAHOO.util.DragDropMgr](#)

Files

[DD.js](#)
[DDProxy.js](#)
[DDTarget.js](#)
[DragDrop.js](#)
[DragDropMgr.js](#)

Class YAHOO.util.DDProxy



```
class YAHOO.util.DDProxy
    extends YAHOO.util.DD
```

Quick Links: [Field Summary](#) | [Constructor Summary](#) | [Method Summary](#) | [Method Details](#)

Field Summary

[\[top\]](#)

boolean	centerFrame By default the frame is positioned exactly where the drag element is, so we use the cursor offset provided by YAHOO.util.DD.
boolean	resizeFrame By default we resize the drag frame to be the same size as the element we want to drag (this is to get the frame effect).
String	dragElId The default drag frame div id

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Y! YUI Library: Animation

Simple Use Case

Interesting Moments in Animation

v0.10

YAHOO.util.Animation

Attributes (obj)
currentFrame (int)
duration (num)
easing (str)
frames (int)
seconds (float)

v0.10

Drag & Drop Manager:

Properties

clickPixelThreshold (int)
clickTimeThreshold (int)
mode (either
YAHOO.util.DragDropMgr
POINT or INTERSECT)
preventDefault (bool)
stopPropagation (bool)
useCache (bool)

Drag & Drop Manager:

Methods

allowPropagation (boolean)
getBestMatch (x, y) (DOM)
getDOMByPath (str)
getLocation (DOM)
getRelated (DOM, b
target only)
isDragDrop (str)
isHandles (DOM, s
handle)
isLegalTarget (DOM,
DOM target)
isLocked (bool)
lock (bool)
refreshCache (bool)
swapNode (DOM)
unlock (bool)

Attributes (obj)
childNodes (array)
className (string)
disabled (boolean)
firstChild (DOM)
id (string)
innerHTML (string)
lastChild (DOM)
nextSibling (DOM)
nodeValue (string)
offsetHeight (int)
offsetWidth (int)
parentNode (DOM)
previousSibling (DOM)
tagName (string)

v0.10

Useful DOM Methods:

appendChild (DOM)
click (DOM)
cloneNode (bool)
contains (DOM)
createElement (string)
createTextNode (string)
focus (DOM)
getAttribute (string)
getElementById (string)
getElementsByName (string)
getElementsByTagName (string)
hasAttribute (string)
hasChildNodes (bool)
insertBefore (DOM, DOM)
removeAttribute (string)
removeChild (DOM)
replaceChild (DOM, DOM)
scrollIntoView (DOM)
setAttribute (string, string)
setInterval (function, int)
setTimeout (function, int)

DOM Node Properties:

attributes (array)
childNodes (array)
className (string)
disabled (boolean)
firstChild (DOM)
id (string)
innerHTML (string)
lastChild (DOM)
nextSibling (DOM)
nodeValue (string)
offsetHeight (int)
offsetWidth (int)
parentNode (DOM)
previousSibling (DOM)
tagName (string)

Y! YUI Library: Drag & Drop

Simple Use Case: Making an Element Draggable

Interesting Moments in Drag & Drop

Moment Point Mode Intersect Mode Event (e)

Y! YUI Library: Dom Collection

Methods Reference

Methods Reference continued

Y! YUI Library: Connection Manager

Simple Use Case

Response Object

v0.10

Y! YUI Library: Event Utility & Custom Event

Simple Use Case: Adding Event Listeners

YAHOO.util.Event.addListener(myDiv, "click", fnCallback);
Adds the function fnCallback as a listener for the click event on an HTML element whose id attribute is "myDiv".

Invocation (addListener)

YAHOO.util.Event.addListener([el | el ref | str | target(s), str event, fn callback, obj associated object, b scope]);

Arguments:
(1) Element or elements: You may pass a single element or group of elements in an array, references may be id strings or direct element references.
(2) Event: A string indicating the event ("click", "keypress", etc.).
(3) Callback: The function to be called when the event fires.
(4) Associated object: Object to which your callback will have access; often the callback's parent object.
(5) Scope: Boolean — if true, the callback runs in the scope of the associated object.

Event Utility Solutions

Using onAvailable:
fnCallback = function() { //will fire when element becomes available
YAHOO.util.Event.onAvailable(myDiv, fnCallback);

Using Event's convenience methods:
fnCallback = function(e, obj) {
myTarget = YAHOO.util.Event.getTarget(e);
//2nd argument tells Event to resolve text nodes
YAHOO.util.Event.addListener(myDiv, "mouseover", fnCallback, obj);

Prevent the event's default behavior from proceeding:
YAHOO.util.Event.preventDefault(e);

Remove listener:
YAHOO.util.Event.removeListener(myDiv, "mouseover", fnCallback);

Dependencies
Event requires the YAHOO object.

Simple Use Case: Custom Event

myEvt = new YAHOO.util.CustomEvent("my event");
mySubscriber = function(type, args) {
alert(args[0]); //alerts the first argument
myEvt.subscribe(mySubscriber);
myEvt.fire("hello world");

Creates a new Custom Event instance and a subscriber function. The subscriber is set to listen to the Custom Event and alert the first argument, "hello world", when the event is fired.

Constructor (Custom Event)

YAHOO.util.CustomEvent(str event name, obj scope obj/evt);

Arguments:
(1) Event name: A string identifying the event.
(2) Scope object: The default scope in which subscribers will run; can be overridden in subscribe method.

Subscribing to a Custom Event

myEvt.subscribe(fn callback, obj associated object, b scope);

Arguments:
(1) Callback: The function to be called when the event fires.
(2) Associated object: Object to which your callback will have access; often the callback's parent object.
(3) Scope: Boolean — if true, the callback runs in the scope of the associated object.

Your callback gets three arguments:
(1) Type: The type of Custom Event, a string.
(2) Arguments: All arguments passed in during fire, as an array.
(3) Associated object: The associated object passed in during subscribe, if present.

DOM Events

Mouse Events:	Keyboard Events:	HTML Events:
click	keydown	error
dblclick	keypress	select
mousedown	keyup	change
mouseout	reset	submit
mouseover	resize	abort
mouseup	scroll	
mousemove	blur	

Event Utility Methods:

addListener(...)
getCharCode(e)
getPageX(e)
getPageY(e)
getRelatedTarget(e)
getTarget(e)
getTimeout(e)
getXY(e): returns array [pageX, pageY]
onAvailable(...)
preventDefault(e)
removeListener(...)
stopEvent(e): same as preventDefault plus stopPropagation
stopPropagation(e)

DOM Event Object Properties & Methods:

altKey (bool)
bubbles (bool)
button (int)
cancelable (bool)
cancelBubble (bool)
charCode (int)
clientX (int)
clientY (int)
ctrlKey (bool)
currentTarget (DOM)
detail (int)
eventPhase (int)
isChar (bool)
keyCode (int)
metaKey (bool)
pageX (int)
pageY (int)
preventDefault (bool)
relatedTarget (DOM)
screenX (int)
screenY (int)
shiftKey (bool)
stopPropagation (bool)
target (DOM)
timestamp (long)
type (string)
[see Event (http://www.w3.org/TR/DOM-Level-2-Events/html.html)]



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YUI: The Yahoo! User Interface Library



Welcome, **nate.koechley**
[Sign Out, My Account]

Tech - Groups - Home

nate.koechley · natek@yahoo-inc.com | Group Moderator - [Edit Membership](#)

[Start a Group](#) | [My Groups](#)

ydn-javascript · Yahoo! User Interface Library Group

Home

Messages

Pending

Spam? [Empty]

Post

Links

Members

Pending

Promote

Invite

Home

Activity within 7 days: **101** New Members - **172** New Messages

Description [\(Edit\)](#)

YDN-JavaScript is a discussion group for the [Yahoo! User Interface Library](#) community working with YUI to build rich internet applications that work robustly [across all modern web browsers](#). Use this group to the YUI Library, its components, and their use with other YUI users; use the [YUI Library's SourceForge Project](#) to document specific bugs and feature requests. You can catch up with additional YUI news at the [YUIBlog](#). See the [the YUI website on the Yahoo! Developer Network](#) for documentation and code samples.



YUI: The Yahoo! User Interface Library

```
YAHOO.util.Motion = function(el, attributes, duration, method) {  
    if (!el) {  
        this.initMotion(el, attributes, duration, method);  
    }  
};  
YAHOO.util.Motion.prototype = new YAHOO.util.Anim();  
YAHOO.util.Motion.prototype.initMotion = function(el, attributes, duration, method) {  
    YAHOO.util.Anim.call(this, el, attributes, duration, method);  
};
```

YAHOO! USER INTERFACE BLOG

News and Articles about Designing and Developing with Yahoo! Libraries.

[Blog](#) [About](#)

Video: Douglas Crockford, "An Inconvenient API: The Theory of the Dom"

October 20, 2006 at 7:42 am by Eric Miraglia | [In Development](#) |

Update 20 October 2006: This video was originally posted with no link to the slide deck that Douglas uses in the talk. That deck is in PowerPoint format and [can be downloaded here](#).

Douglas Crockford is Yahoo!'s leading JavaScript Architect. He has written extensively on JavaScript and has been among the protagonists of the JavaScript developer community for more than a decade. Douglas is the discoverer of the JSON data format and a frequent contributor to YUIBlog.

SYNDICATE

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[Design Pattern Conversation: What's the Best Way to Communicate Patterns? Part Five.](#)

[Design Pattern Conversation: What's the Best Way to Communicate Patterns? Part](#)

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YUI: The Yahoo! User Interface Library

YAHOO! DEVELOPER NETWORK

Design Pattern Library

[Yahoo! Developer Network](#) > Design Pattern Library

USER NEEDS TO

▼ NAVIGATE

[Breadcrumbs](#)

▶ [Faceted Navigation](#)

[Fly-out Menus](#)

[Horizontal Bar](#)

[Hub and Spoke](#)

[Left Navigation](#)

▼ [Tabs](#)

[Module Tabs](#)

[Navigation Tabs](#)

▼ EXPLORE DATA

[Auto Complete](#)

[Calendar Picker](#)

▼ [Pagination](#)

[Item Pagination](#)

[Search Pagination](#)

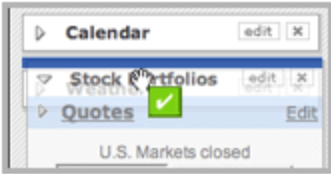
Welcome

Welcome to the Yahoo! Design Pattern Library. You're looking at the second of many periodic releases, many of which include pointers to the [Yahoo! User Interface Library](#) code. We're thrilled to be sharing patterns and code with the design and development community, hope it's useful, and look forward to your [feedback](#).

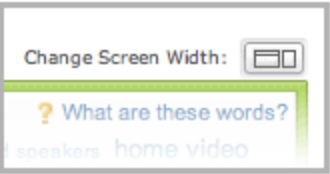
What's a Pattern?

A pattern describes an optimal solution to a common problem within a specific context. [more...](#)

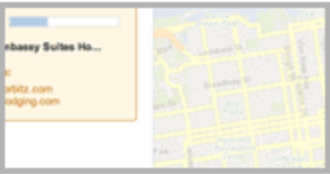
Recent Patterns [see all...](#)



[Animate Transition](#)
Designer needs to



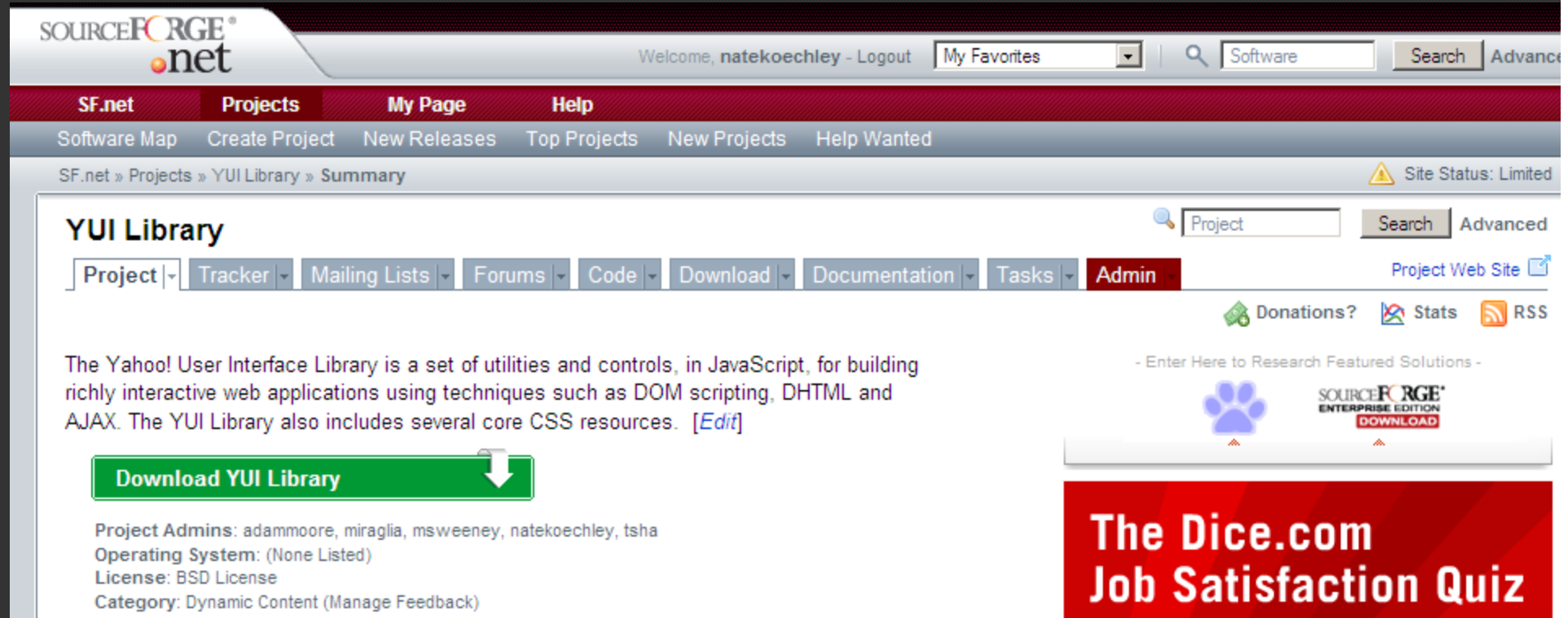
[Collapse Transition](#)
The designer needs to



[Dim Transition](#)
Designer needs to

WEBBuilder2.0

YUI: The Yahoo! User Interface Library



The screenshot shows the SourceForge project page for the Yahoo! User Interface Library (YUI). The page has a dark red header with the SourceForge logo and navigation links. Below the header is a navigation bar with links for Software Map, Create Project, New Releases, Top Projects, New Projects, and Help Wanted. The main content area is titled "YUI Library" and includes a description of the library, a download button, and project details. The right sidebar contains links for Donations, Stats, and RSS, as well as a link to the Project Web Site. A large red banner at the bottom right promotes "The Dice.com Job Satisfaction Quiz".

SourceForge.net Welcome, natekoechley - Logout My Favorites Software Search Advanced

SF.net Projects My Page Help

Software Map Create Project New Releases Top Projects New Projects Help Wanted

SF.net » Projects » YUI Library » Summary Site Status: Limited

YUI Library

Project Tracker Mailing Lists Forums Code Download Documentation Tasks Admin Project Web Site

Donations? Stats RSS

- Enter Here to Research Featured Solutions -

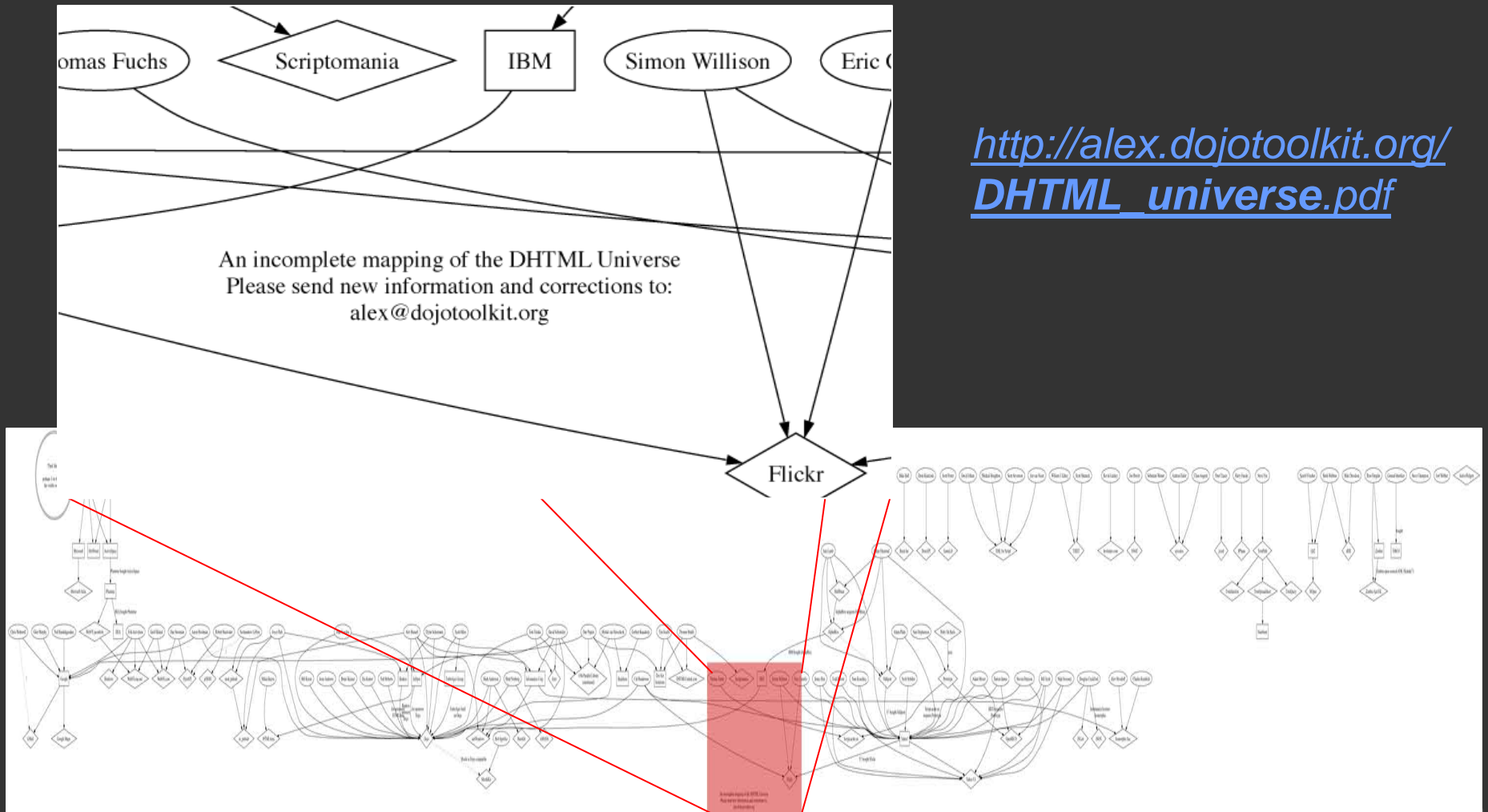
Download YUI Library

Project Admins: adammoore, miraglia, msweeney, natekoechley, tsha
Operating System: (None Listed)
License: BSD License
Category: Dynamic Content (Manage Feedback)

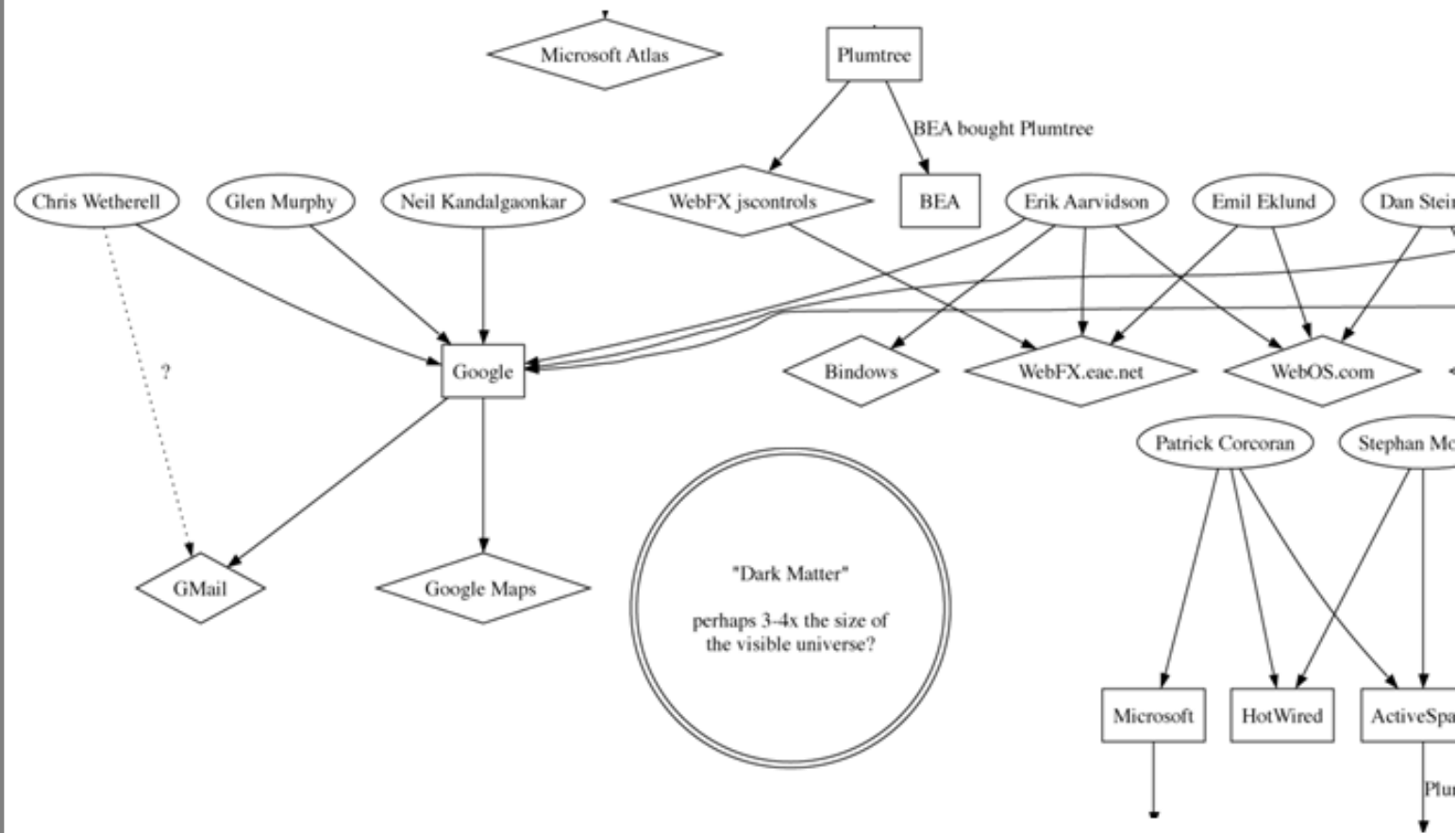
The Dice.com Job Satisfaction Quiz

The DHTML Universe

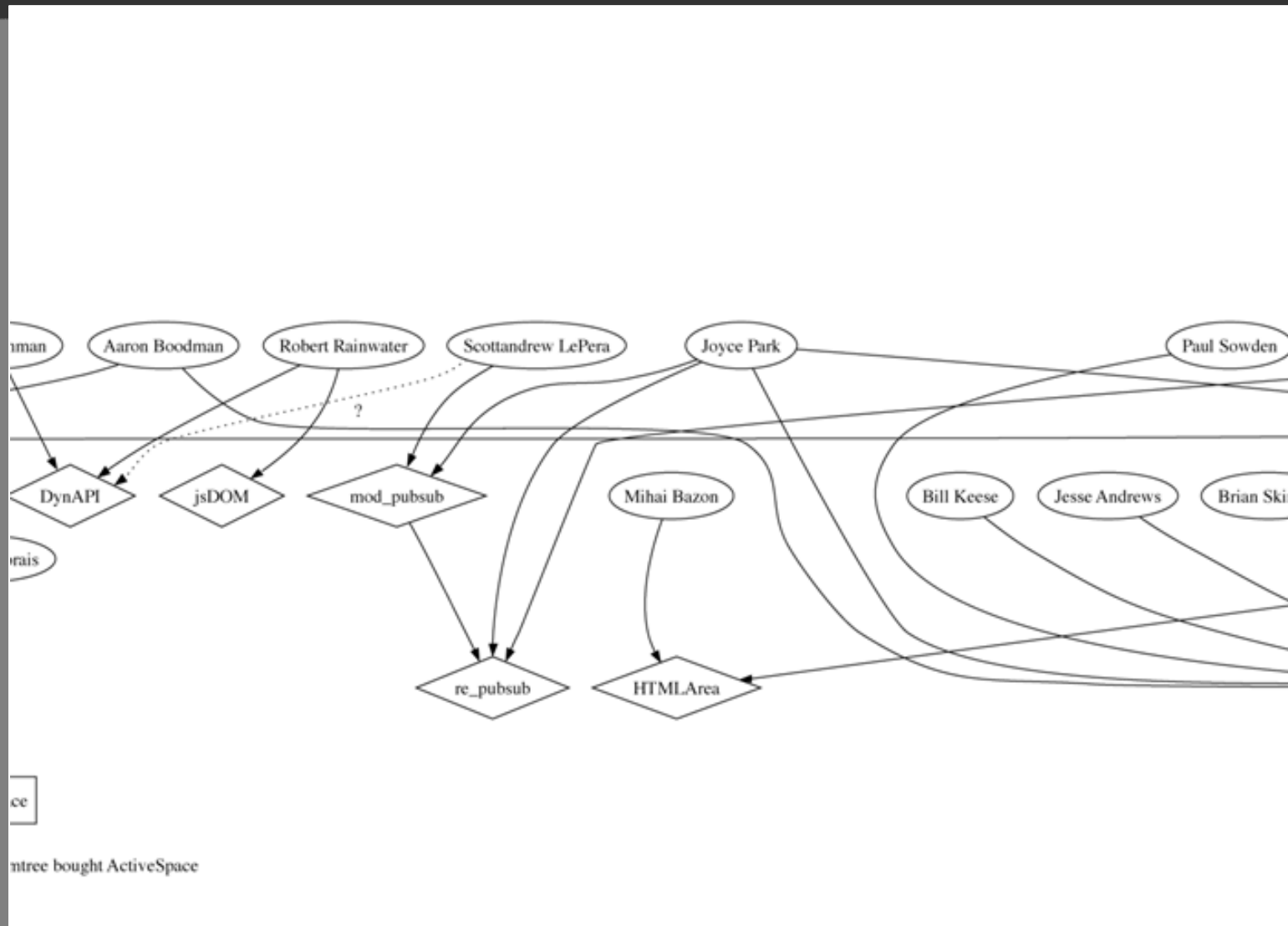
by Dojo's Alex Russell (work in progress)



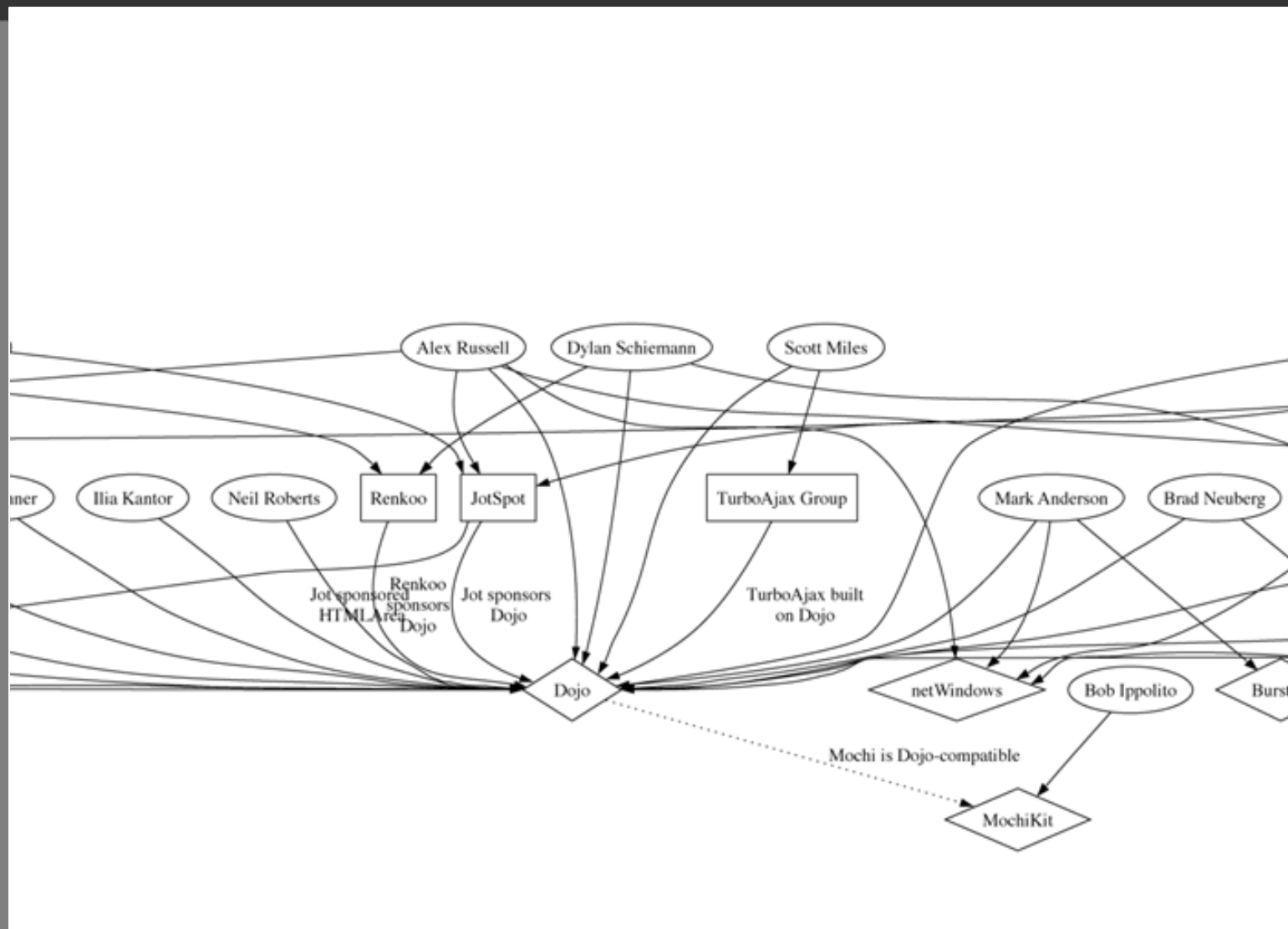
1 2345678



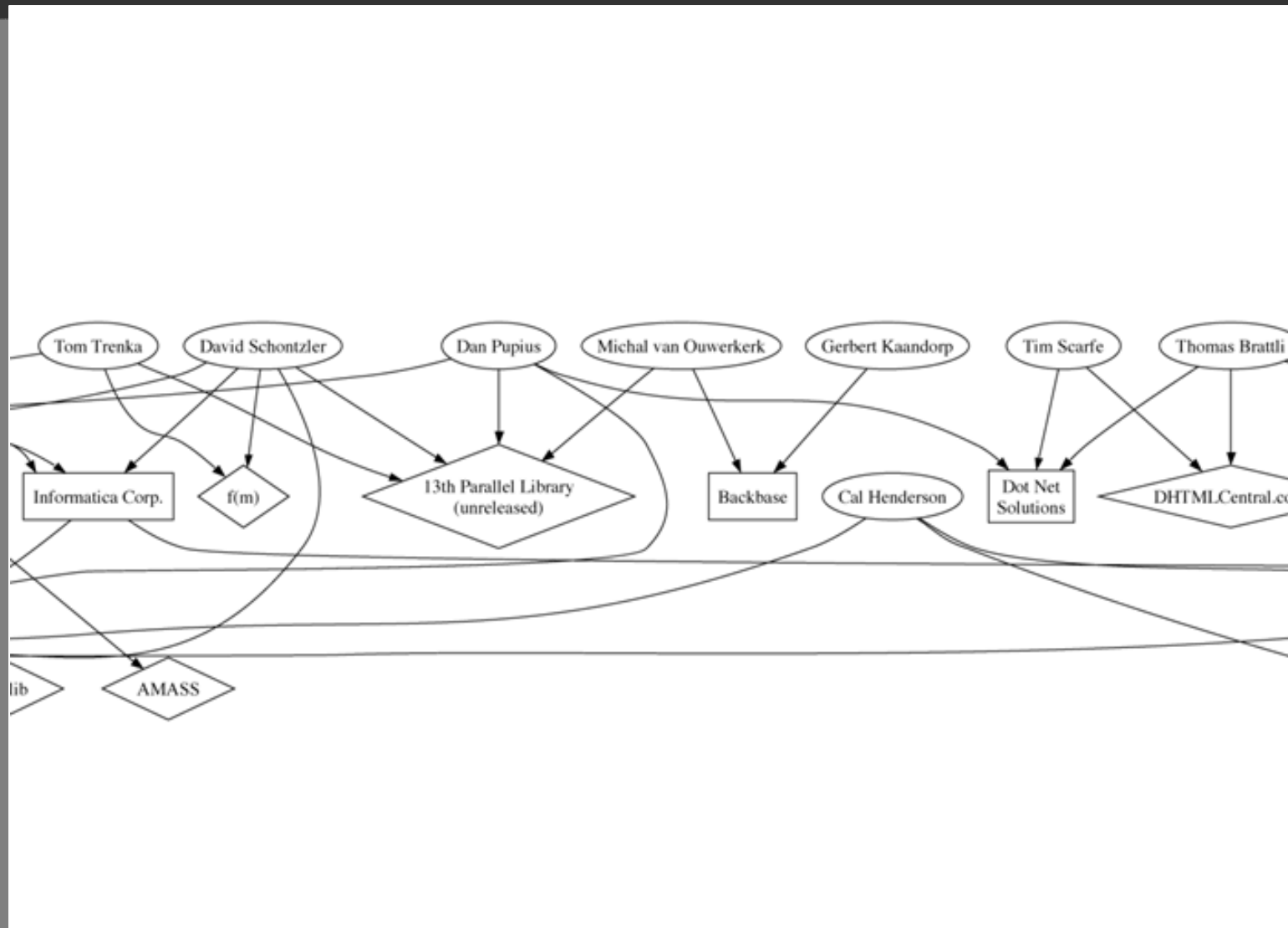
12345678

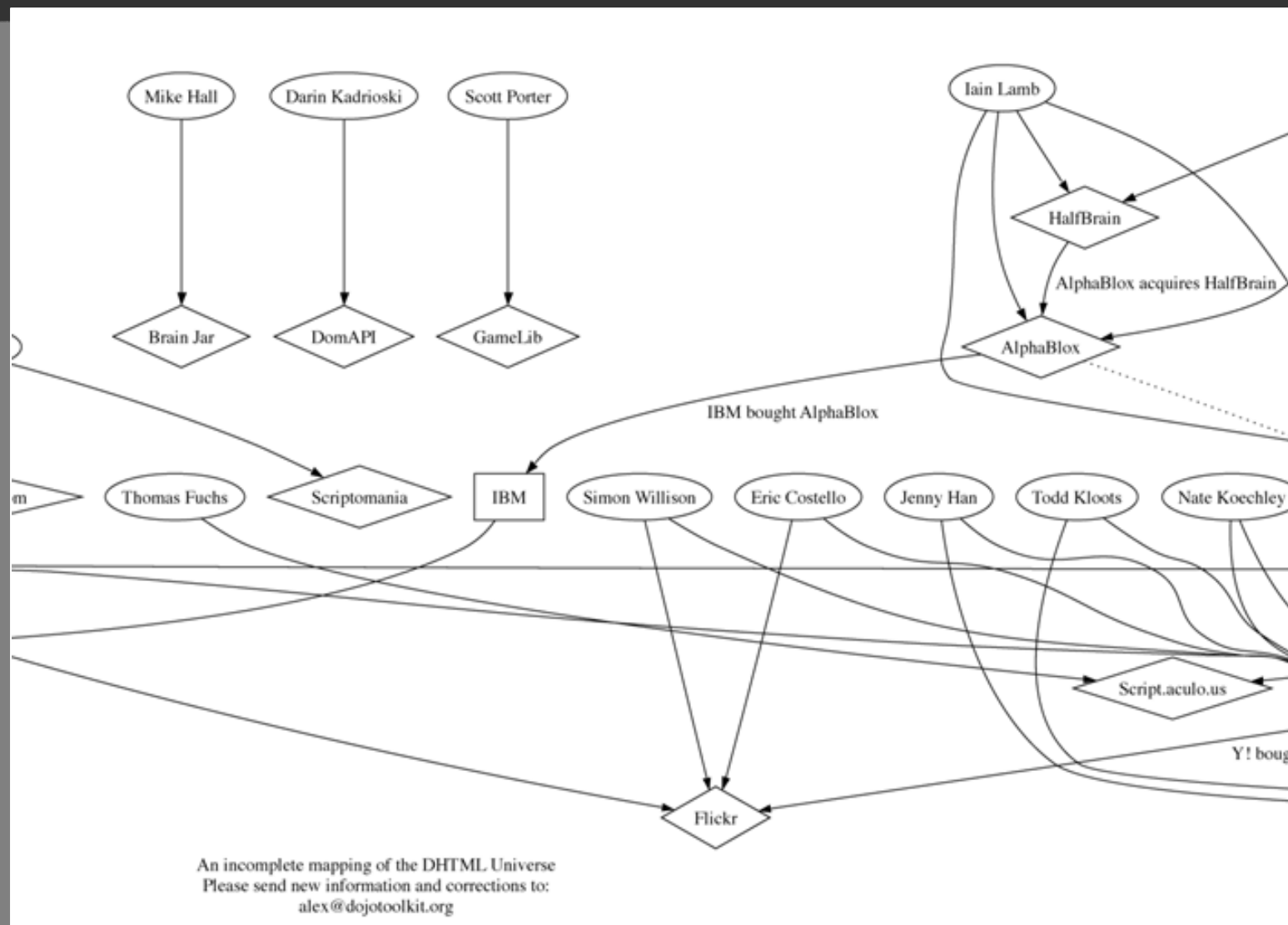


12345678

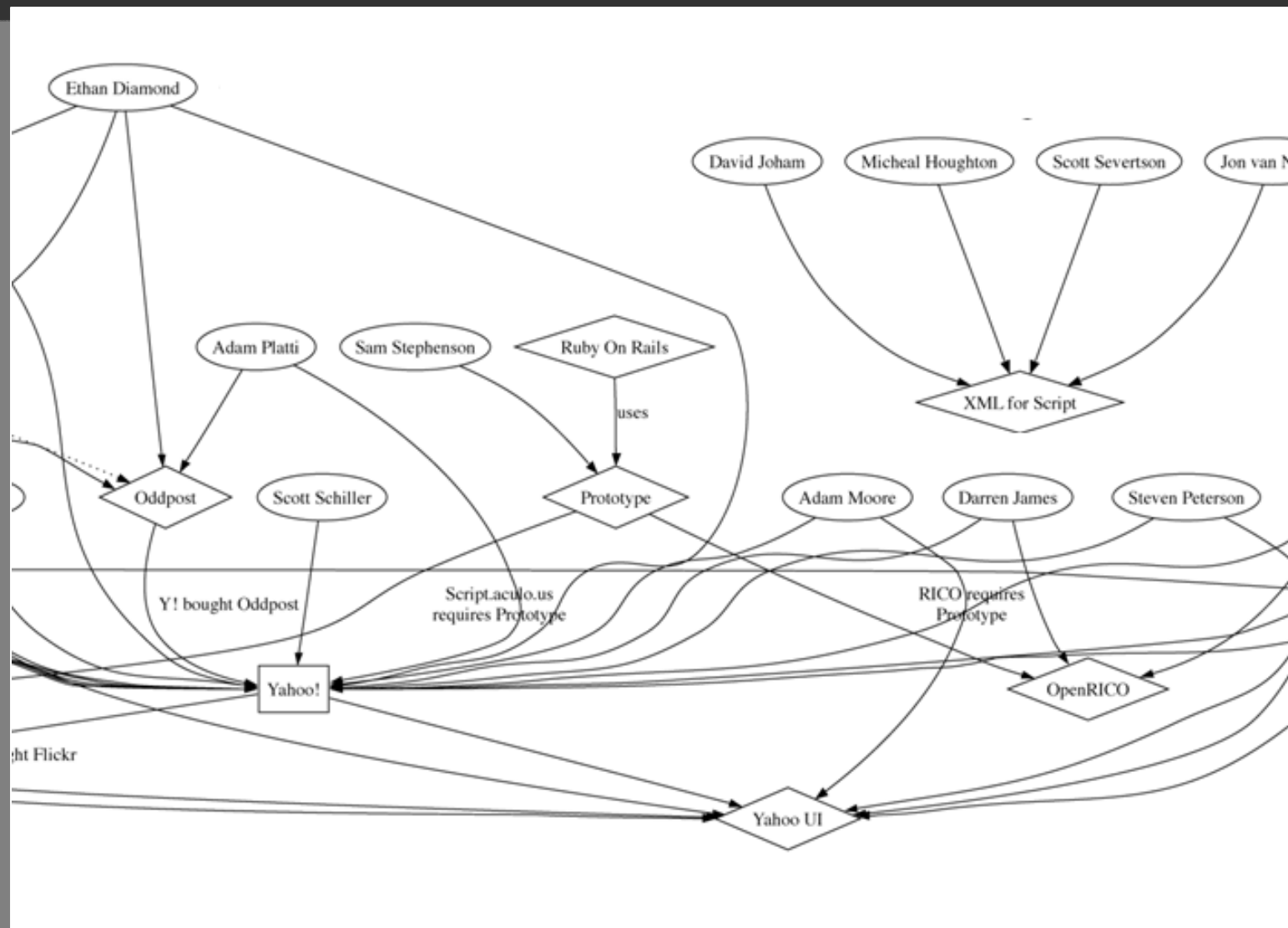


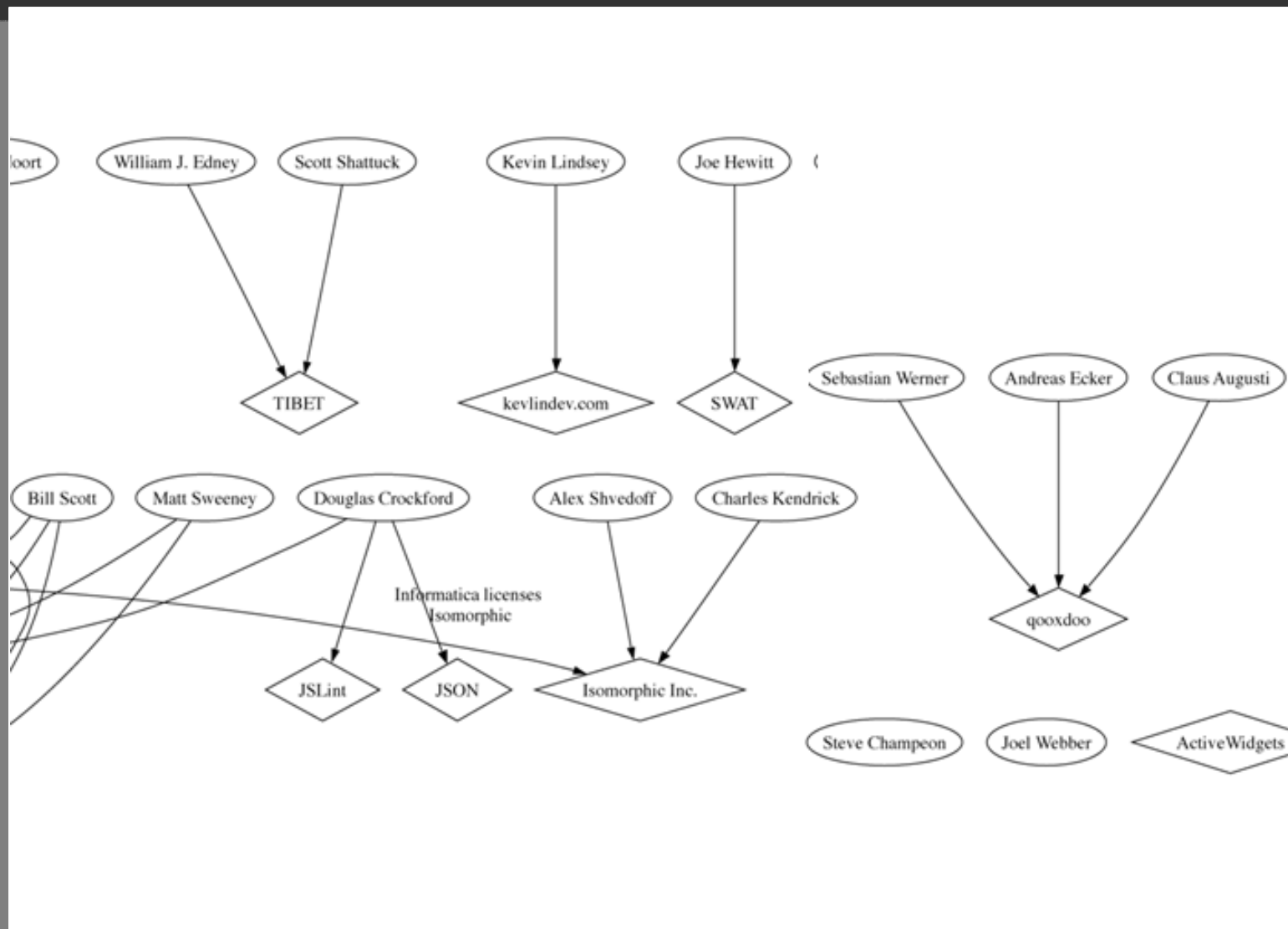
12345678



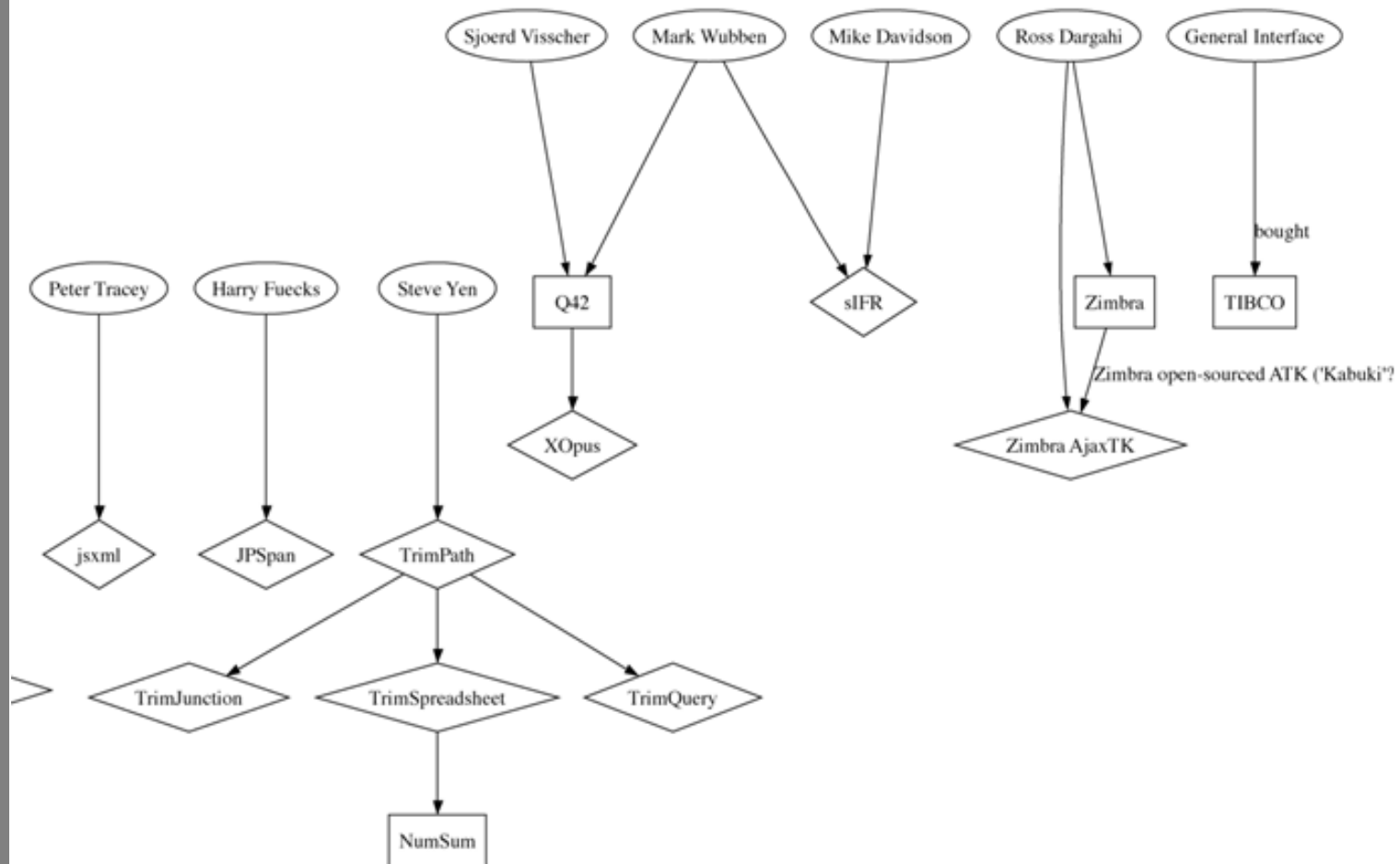


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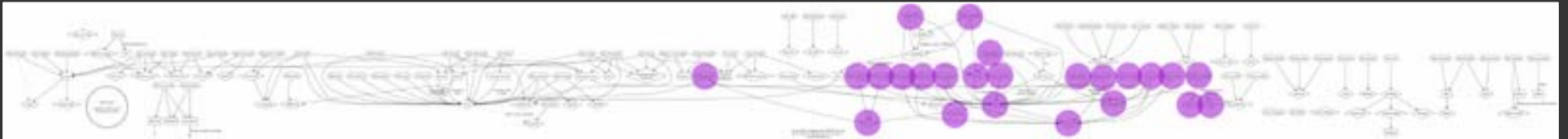




12345678



A Great Community at Yahoo!



(praise them – blame me)

WEBBuilder2.0

A quick history:

WEBBuilder^{2.0}

A bit of evolution over the years...

Yahoo

[[What's New?](#) | [What's Cool?](#) | [What's Popular?](#) | [A Random Link](#)]

[[Yahoo](#) | [Up](#) | [Search](#) | [Suggest](#) | [Add](#) | [Help](#)]

- [Art](#) (619) [new]
- [Business](#) (8546) [new]
- [Computers](#) (3266) [new]
- [Economy](#) (898) [new]
- [Education](#) (1839) [new]
- [Entertainment](#) (8814) [new]
- [Environment and Nature](#) (268) [new]
- [Events](#) (64) [new]
- [Government](#) (1226) [new]
- [Health](#) (548) [new]
- [Humanities](#) (226) [new]
- [Law](#) (221) [new]
- [News](#) (301) [new]
- [Politics](#) (184) [new]
- [Reference](#) (495) [new]
- [Regional Information](#) (4597) [new]
- [Science](#) (3289) [new]
- [Social Science](#) (115) [new]
- [Society and Culture](#) (933) [new]

There are currently **31897** entries in the Yahoo database

1994

WEBBuilder2.0

A bit of evolution over the years...



1994

1995

WEBBuilder2.0

A bit of evolution over the years...



1994

- **Arts and Humanities**
[Architecture](#), [Photography](#), [Literature](#)...
- **Business and Economy [Xtra!]**
[Companies](#), [Investing](#), [Employment](#)...
- **Computers and Internet [Xtra!]**
[Internet](#), [WWW](#), [Software](#), [Multimedia](#)...
- **Education**
[Universities](#), [K-12](#), [College Entrance](#)...
- **Entertainment [Xtra!]**
[Cool Links](#), [Movies](#), [Music](#), [Humor](#)...
- **Government**
[Military](#), [Politics \[Xtra!\]](#), [Law](#), [Taxes](#)...
- **Health [Xtra!]**
[Medicine](#), [Drugs](#), [Diseases](#), [Fitness](#)...
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- **Regional**
[Countries](#), [Regions](#), [U.S. States](#)...
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- **Social Science**
[Anthropology](#), [Sociology](#), [Economics](#)...
- **Society and Culture**
[People](#), [Environment](#), [Religion](#)...

1995

1997

[My Yahoo!](#) - [Yahoo!igans! for Kids](#) - [Beatrice's Web Guide](#) - [Yahoo! Internet Life](#)
[Weekly Picks](#) - [Today's Web Events](#) - [Chat](#) - [Weather Forecasts](#)
[Random Yahoo! Link](#) - [Yahoo! Shop](#)

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EBBuilder2.0

A bit of evolution over the years...



1994

1995

1997

2000

EBBuilder2.0

A bit of evolution over the years...

The screenshot shows the Yahoo! homepage with the following elements:

- Top Navigation:** Finance, Messenger, Check Email, YAHOO!, What's New, Personalize, Help.
- Email Section:** "Get your own email address" with a link to "free_email@yahoo.com" and a search bar.
- Search:** A search bar with a "Search" button and a link to "advanced search".
- Services:** "Yahoo! Careers - Find a Job, Post Your Resume, Research Salaries".
- Connect:** A list of services including Auctions, Autos, Classifieds, Shopping, Travel, Yellow Pgs, Maps, Media, Finance, Quotes, News, Sports, Weather, Chat, Clubs, GeoCities, Greetings, Mail, Members, Messenger, Mobile, Personals, People Search, Photos, Personal, AddrBook, Briefcase, Calendar, My Yahoo!, PayDirect, Fun, Games, Kids, Movies, Music, Radio, TV, and more.
- Personals:** A section titled "Make a Connection with Yahoo! Personals" with a form for finding matches.
- News & Media:** A section titled "In the News" with a list of headlines.
- Marketplace:** A section titled "Marketplace" with a list of items for sale.
- Broadcast Events:** A section titled "Broadcast Events" with a list of events.
- Inside Yahoo!:** A section titled "Inside Yahoo!" with a list of internal links.
- Local Yahoo!s:** A section titled "Local Yahoo!s" with a list of regional links.
- More Yahoo!s:** A section titled "More Yahoo!s" with a list of additional services.

1994

1995

1997

2000

2002

WEBBuilder2.0

A bit of evolution over the years...



1994

1995

1997

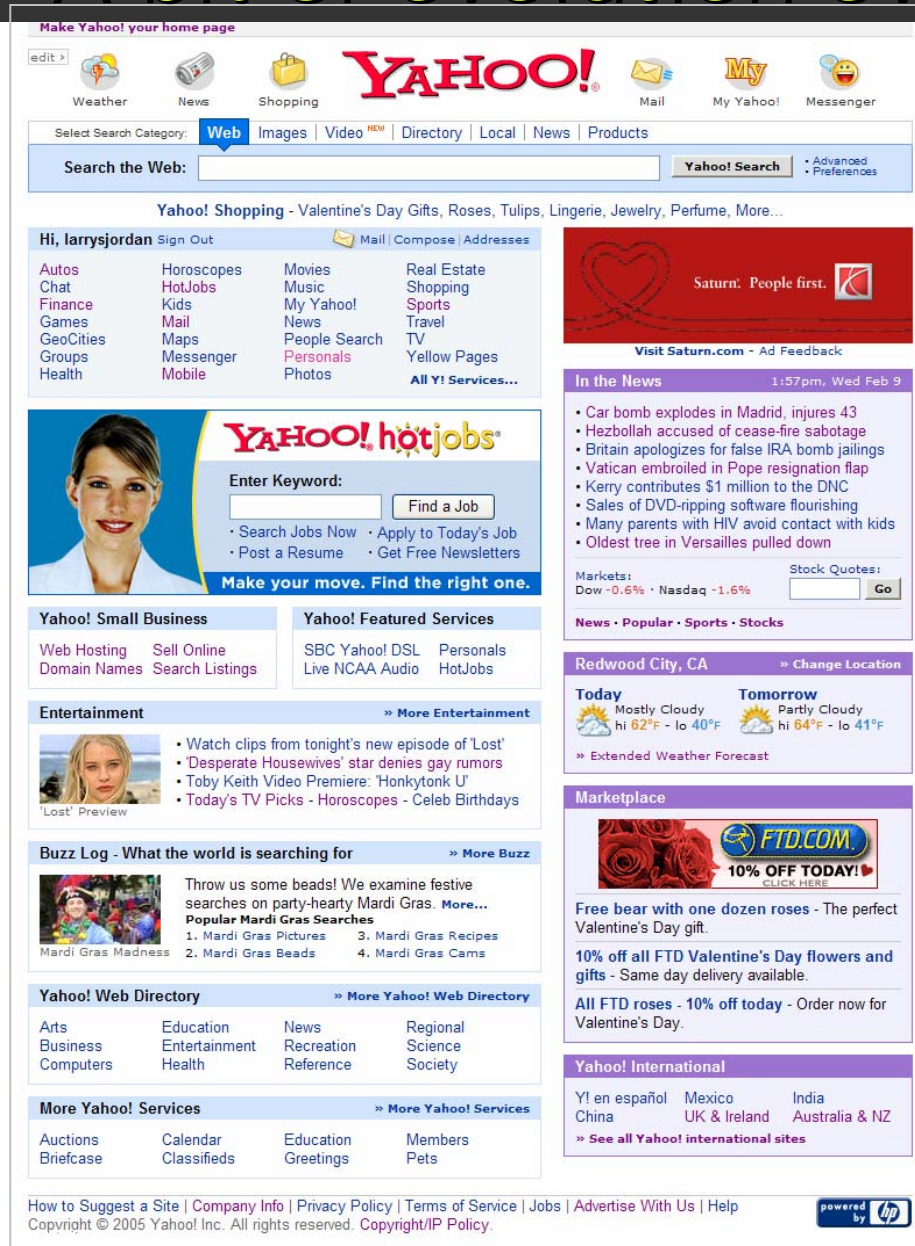
2000

2002

2004

WEBBuilder2.0

A bit of evolution over the years...



1994

1995

1997

2000

2002

2004

Today per month:

188m users

5.2 billion hits

YAHOO!

My Yahoo!

My Mail

Web Images Video Audio Directory Local News Shopping

Search:

Web Search

* Yahoo! Answers: Ask a question | Answer questions

Page Options ▾

Autos

Calendar

Finance

Games

GeoCities

Groups

Horoscopes

HotJobs

Kids

Maps

Music

News

Personals

Photos

Real Estate

Shopping

Sports

TV

Travel

Yellow Pages

All Yahoo! Services

Small Business

- Web Hosting

Featured Entertainment **Sports** Money**NHL measures success at winning back the fans**Stanley Cup finalists have done their part after the lockout. [» More](#)

- Carolina handed Game 1 win
- Series breakdown Photos



Brien's wrong: Did pride cost Taylor his career?



World Cup: Can the U.S. survive Group E?



Wie fails to qualify for men's U.S. Open



NHL measures success at winning back fans

[» More Sports](#)In the News **World** Video

- More arrests likely in Canadian probe
- Security Council arrives in wary Sudan
- Islamic militia seizes Somalia's capital
- Abbas to call referendum on Israel
- Kidnappers challenge new Iraq government
- Peru election won't end Chavez's influence
- Syrian opposition urges regime's ouster
- E. Timor government shows signs of revival

[» More World News](#)Markets: Dow: **-1.8%** Nasdaq: **-2.2%****Marketplace**

HP Color LaserJet 2600n
Now \$349.99 with rebate. Network-ready and prints up to 8 pages a minute. [Learn more >>](#)

Hi, nate.koechley

Sign Out



Mail



Messenger



Radio

Weather
53° - 60°

Local



Movies

**\$1,000,000 Reward****Inside Yahoo! Shopping****Gadgets for Dads & Grads**

- Computers
- Digital Cameras
- MP3 Players
- Camcorders
- DVRs
- TVs

Special Offer



Casio Pathfinder: 10% off

Yahoo! Pulse

Top User Rated Animated Movies



- 1 The Incredibles**
[Read user reviews](#)
- 2 Finding Nemo**
[Read user reviews](#)
- 3 The Lion King**
[Read user reviews](#)
- 4 Shrek**
[Read user reviews](#)

Video: http://nate.koechley.com/talks/2006/12/webbuilder/Yahoo-vs-Yahoo/fp_2.avi

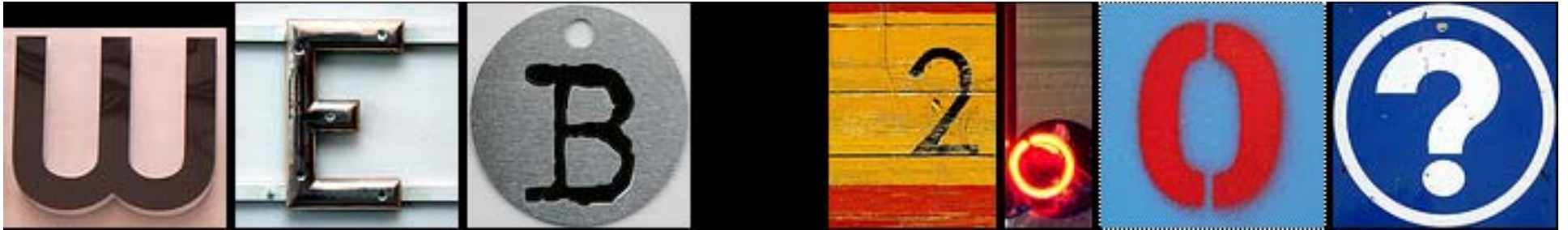


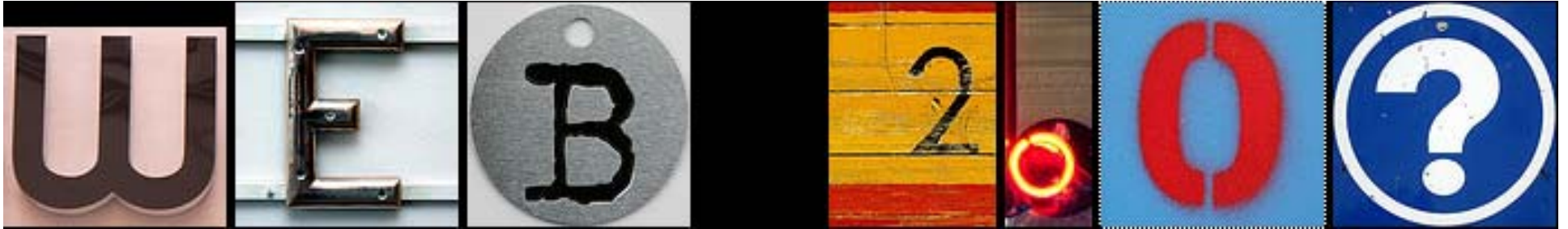
It is *immensely* telling
that the new Yahoo!
homepage is a DHTML
and Ajax homepage.

Why is this noteworthy?

- “Content delivery” to “software development”
- Browser as application platform is “the most hostile environment possible”
- Massive edge-case populations

WEBBuilder2.0





“Getting It Right The Second Time”

(matt sweeney)

WEBBuilder^{2.0}

Three Case Studies



WEBBuilder^{2.0}



Case Study #1
www.yahoo.com

- History
 - From scratch
- Massive Scale
 - 5.2 billion views / month
 - 188 million unique users / month
- DHMTL and Ajax Implementation

(all data from comScore)

WEBBuilder2.0

YAHOO!

My Yahoo!

My Mail

Web Images Video Audio Directory Local News Shopping

Search:

Web Search

Yahoo! Answers: Ask a question | Answer questions

Page Options ▾

Autos

Calendar

Finance

Games

GeoCities

Groups

Horoscopes

HotJobs

Kids

Maps

Music

News

Personals

Photos

Real Estate

Shopping

Sports

TV

Travel

Yellow Pages

All Yahoo! Services

Small Business

- Web Hosting
- Domain Names
- Sell Online

Featured

Entertainment

Sports

Money

**NHL measures success at winning back the fans**Stanley Cup finalists have done their part after the lockout. [» More](#)

- Carolina handed Game 1 win
- Series breakdown [Photos](#)



Brien's wrong: Did pride cost Taylor his career?



World Cup: Can the U.S. survive Group E?



Wie fails to qualify for men's U.S. Open



NHL measures success at winning back fans

[» More Sports](#)

In the News

World

Video

- More arrests likely in Canadian probe
- Security Council arrives in wary Sudan
- Islamic militia seizes Somalia's capital
- Abbas to call referendum on Israel
- Kidnappers challenge new Iraq government
- Peru election won't end Chavez's influence
- Syrian opposition urges regime's ouster
- E. Timor government shows signs of revival

[» More World News](#)Markets: Dow: **-1.8%** Nasdaq: **-2.2%****Marketplace**

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Hi, nate.koechley

Sign Out



Mail



Messenger



Radio

Weather
53° - 60°

Local



Movies



\$1,000,000 Reward

Inside Yahoo! Shopping**Gadgets for Dads & Grads**

- Computers
- Camcorders
- Digital Cameras
- DVRs
- MP3 Players
- TVs

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Casio Pathfinder: 10% off

Yahoo! Pulse

Top User Rated Animated Movies



- 1 **The Incredibles**
[Read user reviews](#)
- 2 **Finding Nemo**
[Read user reviews](#)
- 3 **The Lion King**
[Read user reviews](#)
- 4 **Shrek**
[Read user reviews](#)

[» More Animated Movies](#)



Case Study #2
photos.yahoo.com

- History
 - From scratch
 - Agile design and development project
- Massive Scale
 - 30 million unique users
 - 2 billion photos
- Major DHTML and Ajax Implementation

WEBBuilder2.0

Add Photos

All My Photos

My Albums

- @Media 2006
- Dan and Randee in...
- Dereks 30th
- Friends and Family
- nates
- PreTday 2003 by N...
- Ravena NY Nov 2003
- screenshots
- senders graduation
- Yahoo Year End Pa...
- Yahoo! Photo Album

My Tags

My Friends' Photos

Friends and Family

The tamer moments

Slideshow

Create ▾

Share ▾

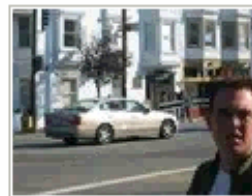
Edit ▾

Prints & Gifts ▾

Drag photos here, then choose a task.



Derek



IMG_4201



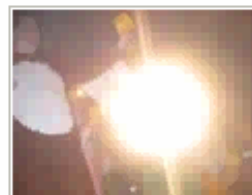
IMG_4215



IMG_3056



IMG_3082



IMG_3091



IMG_4200



IMG_4202



Case Study #3
mail.yahoo.com

- History
 - Beta release about 1.5 years ago
 - Legacy-ish! (was Oddpost.com since 1999)
- Massive Scale
 - World's largest email provider ~257MM
 - Available in 21 languages
- Preeminent DHTML and Ajax Application

WEBBuilder2.0



(Don't worry – not a product pitch)

WEBBuilder2.0

Common Goals:

Common Goals:

1) Performance

Performance:

time-to-paint

time-to-onLoad

speed on the wire

speed of development

memory & CPU footprint

Common Goals:




1) Performance

2) Interactivity

Common Goals:

- 1) Performance**
- 2) Interactivity**
- 3) Make Good Choices**

Common Approaches

			
Doctype	HTML 4.01 Strict	XHTML 1.0 Strict	None
Render Mode	Strict	Strict	Quirks
CSS Sprites	Yes	Yes	Yes
Font-size Responsive	Yes	Yes	No
Keyboard	Yes	Yes	Yes
Absolute Pos	No	No	No
Minimization	Yes	Yes	Yes
Obfuscation	No	No	Yes
Compression	Yes	Yes	Yes

from Documents
& Pages

to Applications

The Page—Application Spectrum

- Historically Web
- Shallow Interaction
- Simple Idioms
- Reading
- Markup + Skin
- Sequential
- Passive
- Historically Desktop
- Deep Interaction
- Sophisticated Idioms
- Doing
- DOM + Ajax
- Contained
- Active



Page



Application



Looking Across the Spectrum

1. Tracking Events
2. Memory Management
3. Delivering JS and CSS
4. Data Format
5. Pagination
6. Browser Support

Looking Across the Spectrum

1. **Tracking Events**
2. Memory Management
3. Delivering JS and CSS
4. Data Format
5. Pagination
6. Browser Support

From: *Page-Granular*

To: *Event-Granular*



Use an Event Utility:

- No JS in markup attribute space
- Many great utilities
 - Dojo
 - YUI Event Utility
 - many more...
- Watch out for memory leaks!!! (yes, three !'s)

Event Attachment



WEBBuilder2.0

**What happens as your app
gets more complex?**

(more events * more objects)

Feeling lucky?



Feeling lucky?

Tracking Events: The Challenge

- How can we minimize the number of objects in play?
- How can we minimize the number of events attached and tracked?

From Attachment to Delegation



WEBBuilder2.0

From Attachment to Delegation



WEBBuilder^{2.0}

From Attachment to Delegation



Event

WEBBuilder^{2.0}

More on “Delegation”

Minimize Object and Event Count by:

1. Only listen to native
`document.onmousedown`
(or whatever node makes sense)
2. *Then* determine which `event.target`
(native)
3. *Just-in-time* handler attachment

Tracking Events: Event Delegation



Event

WEBBuilder^{2.0}


```
//listen on parent
```

```
YUI.Event.on('parent', 'click', clickDelegate );
```

```
function clickDelegate(e){
```

```
    // get the target
```

```
    var origin = YUI.Event.getTarget(e, false);
```

```
    // delegate "just in time"
```

```
    if(YUI.Dom.hasClass(origin, 'child'))
```

```
        alert(origin.innerHTML + ' was clicked.');
```

```
}
```

```
<div id="parent">
```

```
    <div class="child">Foo</div>
```

```
    <div class="child">Bar</div>
```

```
</div>
```

<http://yuiblog.com/sandbox/yui/v0114/examples/event/delegation.php>

Nate Koechley – natek@yahoo-inc.com

WEBBuilder 2.0

Tracking Events:



- Limited objects & simple handlers
- Attachment



- Many objects & multiple handlers
- Delegation



- Many objects & multiple handlers
- Delegation

Page

Application

Looking Across the Spectrum

1. Tracking Events
- 2. Memory Management**
3. Delivering JS and CSS
4. Data Format
5. Pagination
6. Browser Support

Memory Management

- Things can get out of hand.
- Goals:
 - 1) Don't leak memory
 - 2) Keep overall footprint minimal
 - 3) Always-responsive, stable interface

Destructor for each Constructor

- Thoroughly Unhook and Remove Handlers and References

Three Approaches

1. DOM Destruction
2. DOM Conservation
3. DOM Recycling

Memory Management



- Conservation (based on use case)



- Destruction



- Destruction, but also...
 - Recycling (of iframes)

Page

Application

Memory Management Tip:

- Measure and Test
 - Drip is a great tool
- Test:
 - Extreme object counts
 - Long interactions
 - Extensive navigation

Drip:

- http://outofhanwell.com/ieleak/index.php?title=Main_Page
- MSDN: [Understanding and Solving Internet Explorer Leak Patterns](#)

Looking Across the Spectrum

1. Tracking Events
2. Memory Management
- 3. Delivering JS and CSS**
4. Data Format
5. Pagination
6. Browser Support

General Best Practice

- Single large file is fastest
 - Avoid HTTP requests
- CSS near top
- JS near `</body>`

Other Approaches (1):

1) Many small files *at once*

- Enables atomic/team development
- Enables partial caching while other parts change

(build process can clean up and concat.)

Other Approaches (2):

2) Many small files *on demand*

- Tuning in response to use case analysis
- Overall time faster, individual time slower

(bait and switch)

Other Approaches (3):

3) **Inline** in the <head>

- Caching doesn't always work.

In particular: browser's home page.

Delivering CSS and JS:



- Many smaller files, on demand. Some inline.
- Every feature not used every time. Content is key.



- Über files of interface JS/CSS. Pay once.
- Then, data and objects on demand



- Single file (anti-example)
- Functionality is key. Highly interconnected.

Page

Application

Looking Across the Spectrum

1. Tracking Events
2. Memory Management
3. Delivering JS and CSS
- 4. Data Format**
5. Pagination
6. Browser Support

General Best Practice

- Use JSON for data interchange
 - “The fat-free alternative to XML”
 - Natively understood. No parsing or crawling.
 - It's **Ajax** not **AJAX**
- <http://www.json.org>
 - Tools in every known programming language

Other Approaches:

- *Somebody* pays to render the View
 - Pass DOM states as strings
 - Important architectural decision
- Finding: Parsing XML degrades performance greater-than-linearly as XML size increases.

Data Format:



“JSON rocks”



“We want to move to JSON”



“We’re using some JSON, and will be much more soon”

“Recognize strengths of client and server”

Page

Application

Disclaimer:

JSON is great, but an intimate understanding of your application is best.

Looking Across the Spectrum

1. Tracking Events
2. Memory Management
3. Delivering JS and CSS
4. Data Format
- 5. Pagination**
6. Browser Support

could != should

Pagination

- In all cases:
 - Know your DOM.
 - Know your footprint.
 - Know your users.

Pagination vs. Endless Scrolling:



- N/A (single page)
- Some Ajax pagination



- Heavy objects
- Pagination with Ajax (new group in memory)



- Light objects
- Endless-scrolling (and clever caching)

Page

Application

Looking Across the Spectrum

1. Tracking Events
2. Memory Management
3. Delivering JS and CSS
4. Data Format
5. Pagination
- 6. Browser Support**

Browsers: The Dirty Truth

- The Web is the **most hostile** software engineering environment imaginable.

– Douglas Crockford

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Binary Browser Support

- Do I need to support Browser XYZ on this project?

Same as saying:

Those users aren't welcome.

WEBBuilder^{2.0}

Graded Browser Support

1. "Support" does not mean "Same"

The Web is Heterogeneous!

“Expecting two users using different browser software to have **an identical experience fails to embrace or acknowledge the heterogeneous essence** of the Web.”

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Graded Browser Support

1. "Support" does not mean "Same"
2. *Grades* of support provide an [appropriate] experience for all.

The Web is about **Availability**

A graded approach is **inclusive** and
brings **sanity** to QA testing.

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Yahoo! Developer Network: Graded Browser Support - Mozilla Firefox

File Edit View Go Bookmarks Yahoo! Tools Help

http://developer.yahoo.com/yui/articles/gbs/gbs.html

Developer Network Home Help Site Search Search

YAHOO! DEVELOPER NETWORK

Graded Browser Support

By Nate Koechley
Senior Web Developer
Yahoo! Inc.
February 13, 2006

In the first 10 years of professional web development, back in the early '90s, browser support was binary: Do you — or don't you — support a given browser? When the answer was "No", user access to the site was often actively prevented. In the years following IE5's release in 1998, professional web designers and developers have become accustomed to asking at the outset of any new undertaking, "Do I have to support Netscape 4.x browsers for this project?"

By contrast, in modern web development we must support *all* browsers. Choosing to exclude a segment of users is inappropriate, and, with a "Graded Browser Support" strategy, unnecessary.

Graded Browser Support offers two fundamental ideas:

- A broader and more reasonable definition of "support."
- The notion of "grades" of support.

What Does "Support" Mean?

Support does not mean that everybody gets the same thing. Expecting two users using different browser software to have an identical experience fails to embrace or acknowledge the heterogeneous essence of the Web. In fact, requiring the same experience for all users creates a barrier to participation. Availability and accessibility of content should be our key priority.

<http://developer.yahoo.com/yui/articles/gbs/gbs.html>

Three Grades of Browser Support

- C-grade support (**core** support, 2%)
- A-grade support (**advanced** support, 96%)
- X-grade support (the **X-Factor**, 2%)

Table of A-Grade Support

A-grade browsers must be thoroughly and systematically developed for and QA tested. C-grade browsers must be spot-tested, while development and QA resources should not address X-grade browsers.

	Win 98	Win 2000	Win XP	Mac 10.3.x	Mac 10.4.x
IE 7.0	n/a	n/a	A-grade	n/a	n/a
IE 6.0	A-grade	A-grade	A-grade	n/a	n/a
Firefox 2.0.*	A-grade	A-grade	A-grade	A-grade	A-grade
Firefox 1.5.*	A-grade	A-grade	A-grade	A-grade	A-grade
Opera 9.*	A-grade	A-grade	A-grade	A-grade	A-grade
Safari 2.0*	n/a	n/a	n/a	n/a	A-grade

http://developer.yahoo.com/yui/articles/gbs/gbs_browser-chart.html



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JavaScript is the name of Netscape Communications Corporation's implementation of ECMAScript, a scripting programming language based on the concept of the language. The language is best known for its use in websites, but is also used to enable ... toolbars etc are visible. Usually **JavaScript** is used to ensure that they ...

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5. [JavaScript](#)

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Browser Support:



- GBS A-grade
- Developed in Gecko



- GBS A-grade
- Developed in Gecko



- IE and FF
- Developed in IE, then built IE-emulation layer.

Page

Application

**Bad decisions are
tomorrow's constraints.**

**Bad decisions are
tomorrow's constraints.**

**Good decisions are
tomorrow's opportunities.**

We're hiring!

(Josie Arguada: jaguada@yahoo-inc.com)

natek@yahoo-inc.com

<http://nate.koechley.com/talks>

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Questions?

natek@yahoo-inc.com

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I don't know.

natek@yahoo-inc.com

<http://nate.koechley.com/talks>

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Namespaces

- History
 - JS is load-and-go; text is eval'd; Implied global variables were a nicety
- Bad because of unreliability and insecurity
 - Trouble when we mashup, have many devs, and programs get large
- Many global variables is bad
- Ideally, only a single global per app|lib|widget
 - An object which contains all others
- Speed unaffected; self documentation; reliable
- Shorten locally if you want.
- <http://yuiblog.com/blog/2006/06/01/global-domination/>

Single Page vs. Multiple Page

- What's the sweet spot?

Thank you.

natek@yahoo-inc.com

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