



Yahoo! Experiences with Accessibility (a11y), DHTML, and Ajax in Rich Internet Applications

Nate Koechley
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<http://nate.koechley.com/blog>

Refresh 06
Orlando, Florida
2006.11.16



Hello, World

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



Agenda

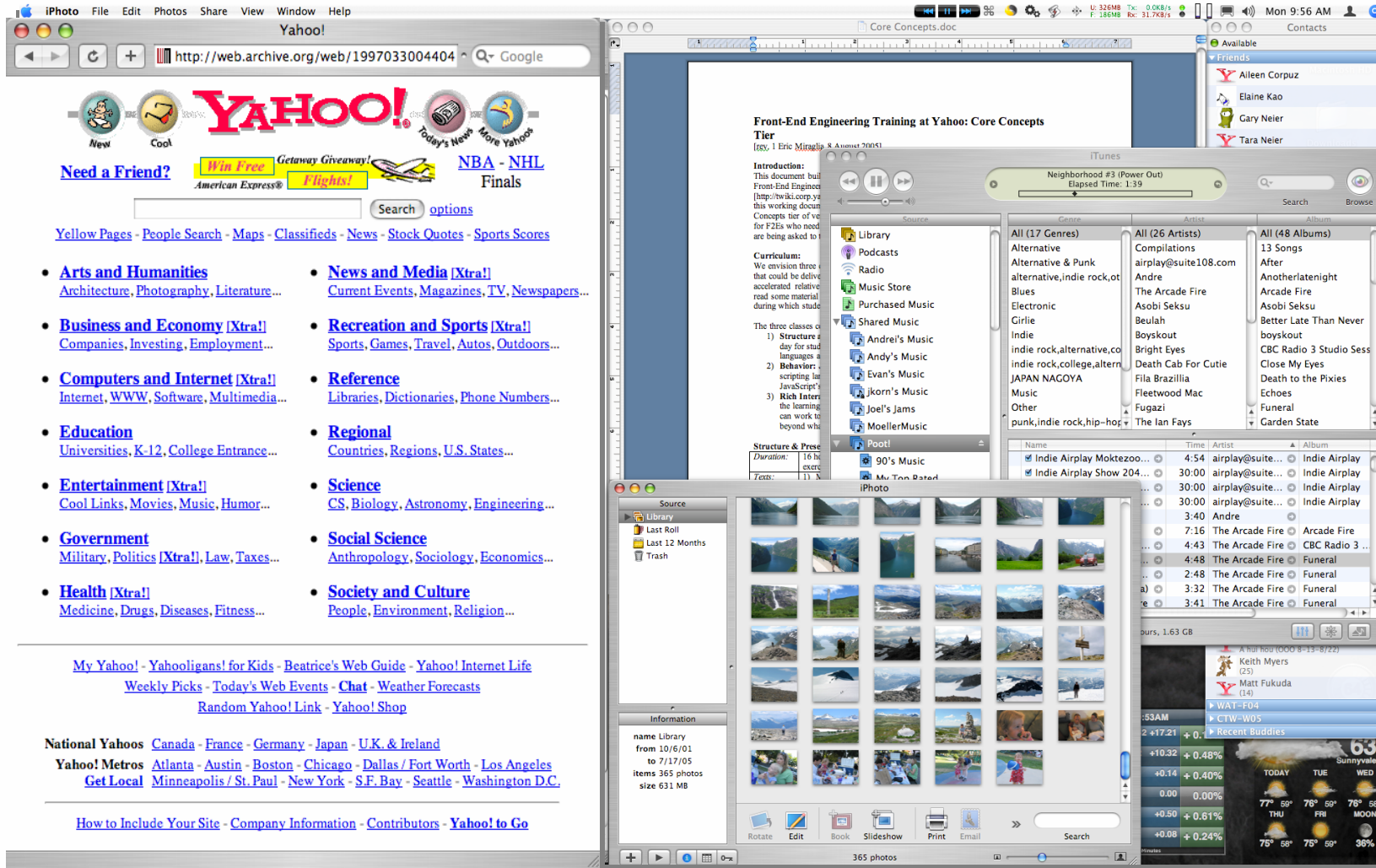
- Changing Landscape
- Four Approaches
 - Standards-based Development
 - Redundant Interfaces
 - Faithful and Predictable Ports
 - “Accessible DHTML”, or WAI ARIA
- Looking Ahead



What's Happening?



Browser vs. Desktop





Web 1.0 vs. Web 2.0

Yahoo!

http://web.archive.org/web/1997033004404

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[Yellow Pages](#) - [People Search](#) - [Maps](#) - [Classifieds](#) - [News](#) - [Stock Quotes](#) - [Sports Scores](#)

- 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](#)...
- News and Media [Xtra!]**
[Current Events](#), [Magazines](#), [TV](#), [Newspapers](#)...
- Recreation and Sports [Xtra!]**
[Sports](#), [Games](#), [Travel](#), [Autos](#), [Outdoors](#)...
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- Social Science**
[Anthropology](#), [Sociology](#), [Economics](#)...
- Society and Culture**
[People](#), [Environment](#), [Religion](#)...

[My Yahoo!](#) - [Yahoo!igans! for Kids](#) - [Beatrice's Web Guide](#) - [Yahoo! Internet Life](#)
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Yahoo! Mail Beta (ericmiraglia)

Welcome, ericmiraglia
Sign Out, My Account, Switch Back

Search Web My Web Bookmarks My Yahoo! Yahoo! Finance Mail News

Check Mail Compose

Find Messages... Go

Inbox 19 messages

Reply Forward Print Spam Delete More Actions View

From	Subject	Date
Dave Bauer	f2e Core Concepts	Wed, 10/5/05, 12:42 PM
Dave Bauer	f2e Core Concepts	Wed, 10/5/05, 12:24 PM
Susan Wolfe	Harmony Computers	Tue, 10/4/05, 12:34 PM
Harmony Computers	Harmony Computers - Shipment Notification for Order #2328448	Tue, 10/4/05, 7:05 AM
Ticketmaster Order Follow-Up	Ticketmaster Order Follow-Up	Mon, 10/3/05, 3:21 PM
STEVE MIRAGLIA	RE: Fwd: estate	Sun, 10/2/05, 10:32 AM
STEVE MIRAGLIA	RE: Fwd: estate	Sun, 10/2/05, 10:31 AM
Woody Miraglia	Fwd: blake's properties	Sat, 10/1/05, 11:46 PM
Harmony Computers	ShopHarmony.com Order # 2328448	Sat, 10/1/05, 9:26 PM
STEVE MIRAGLIA	blake's properties	Sat, 10/1/05, 8:51 PM
Debbie In	SF Chronicle link for disaster preparedness/earthquake information	Sat, 10/1/05, 1:59 PM
invitation to a Disaster Preparedness "party" on Saturday 10/22, 4:0		Thu, 9/29/05, 10:43 AM
iTunes Music Store	Your receipt #5206418221	Thu, 9/29/05, 10:02 AM
STEVE MIRAGLIA	thanks	Thu, 9/29/05, 8:59 AM

My Folders: Friends, f2e Core Concepts

Subject: f2e Core Concepts
From: Dave Bauer <bauerd@hotmail.com>
Date: Wed Oct 5 12:24:40 2005
To: EricMiraglia@yahoo.com
Attachments: [Lab Day.zip](#); [Sports Example.zip](#)

Eric

Here we go. If this is successful I will send a subsequent message with the zipped ppt (Day #1 and #2) attached. Currently attached is a slightly modified Lab Day and the Yahoo Sports Example I discussed with you over the phone.

Dave

So, what do you really think?
Send feedback about Yahoo! Mail Beta
SEND FEEDBACK

Done

w

E

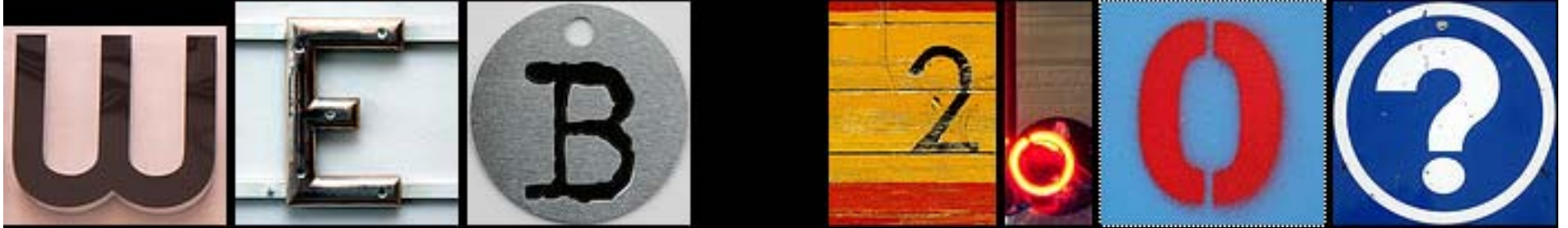
B

2



0





**“Getting It Right The
Second Time”**

– matt sweeney



Getting it Right the Second Time

- Use technology as designed

H1, LI, P

- Not corrupt layers of the stack

Bad: `class="red-button"` and `href="#"`

- Create platforms. [Evolvability](#)

– Encapsulation, Flexibility, Mashups,
Services, Portability

- **Preserve opportunity & availability**



How do you move to RIAs?

Yahoo!

http://web.archive.org/web/1997033004404

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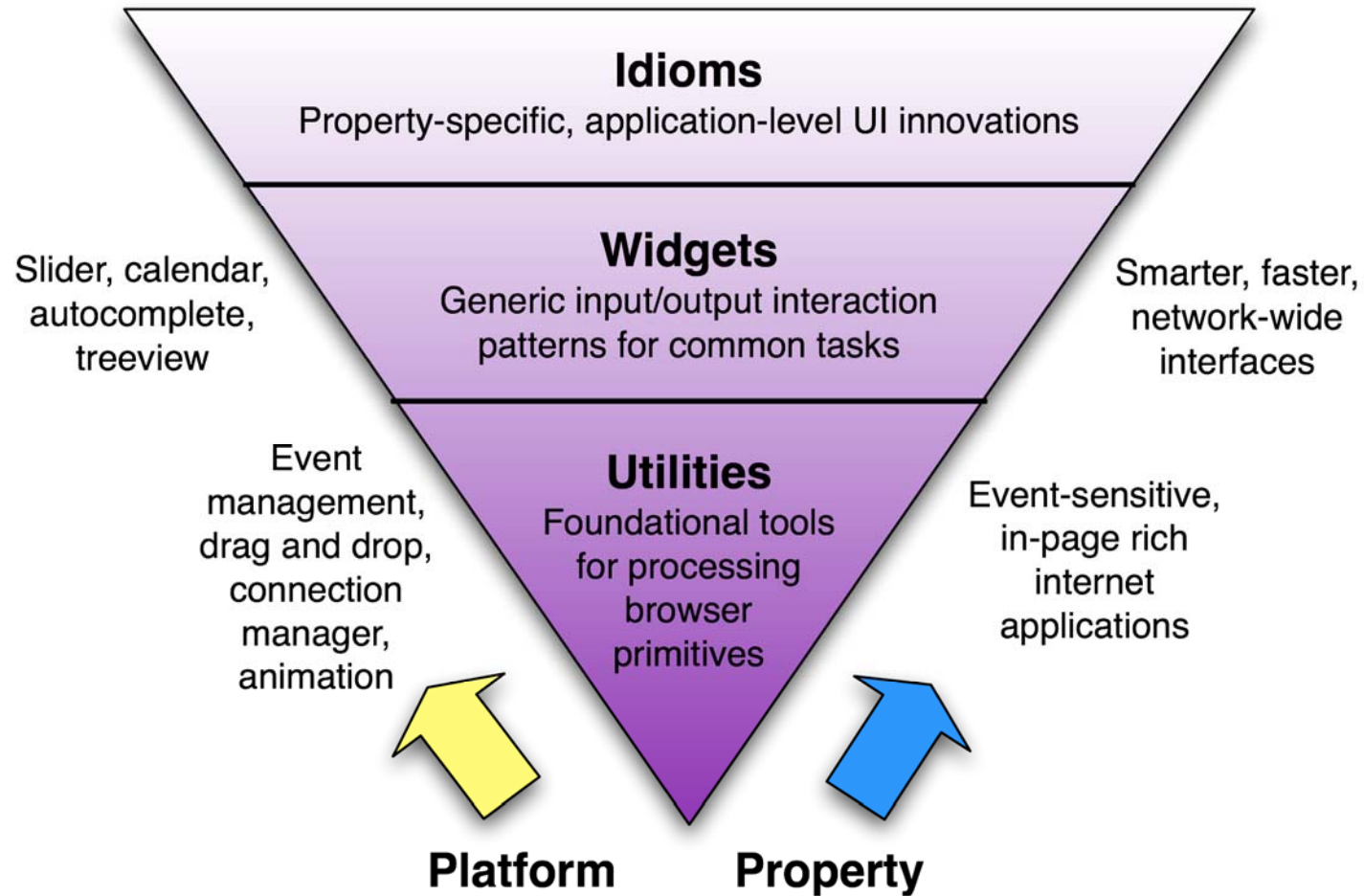
Send feedback about
Yahoo! Mail Beta

[SEND FEEDBACK](#)

Done



Learn from Desktop History



Adapted from Alan Cooper's "About Face 2.0" Book

The Yahoo! User Interface (YUI) Library

Tree Control

AutoComplete

Slider

Calendar Control

Compounds

Menu Control

Logger Control

DHTML Windowing

Animation

Drag & Drop

Connection
Manager (Ajax)

[Utilities]

Event Utility

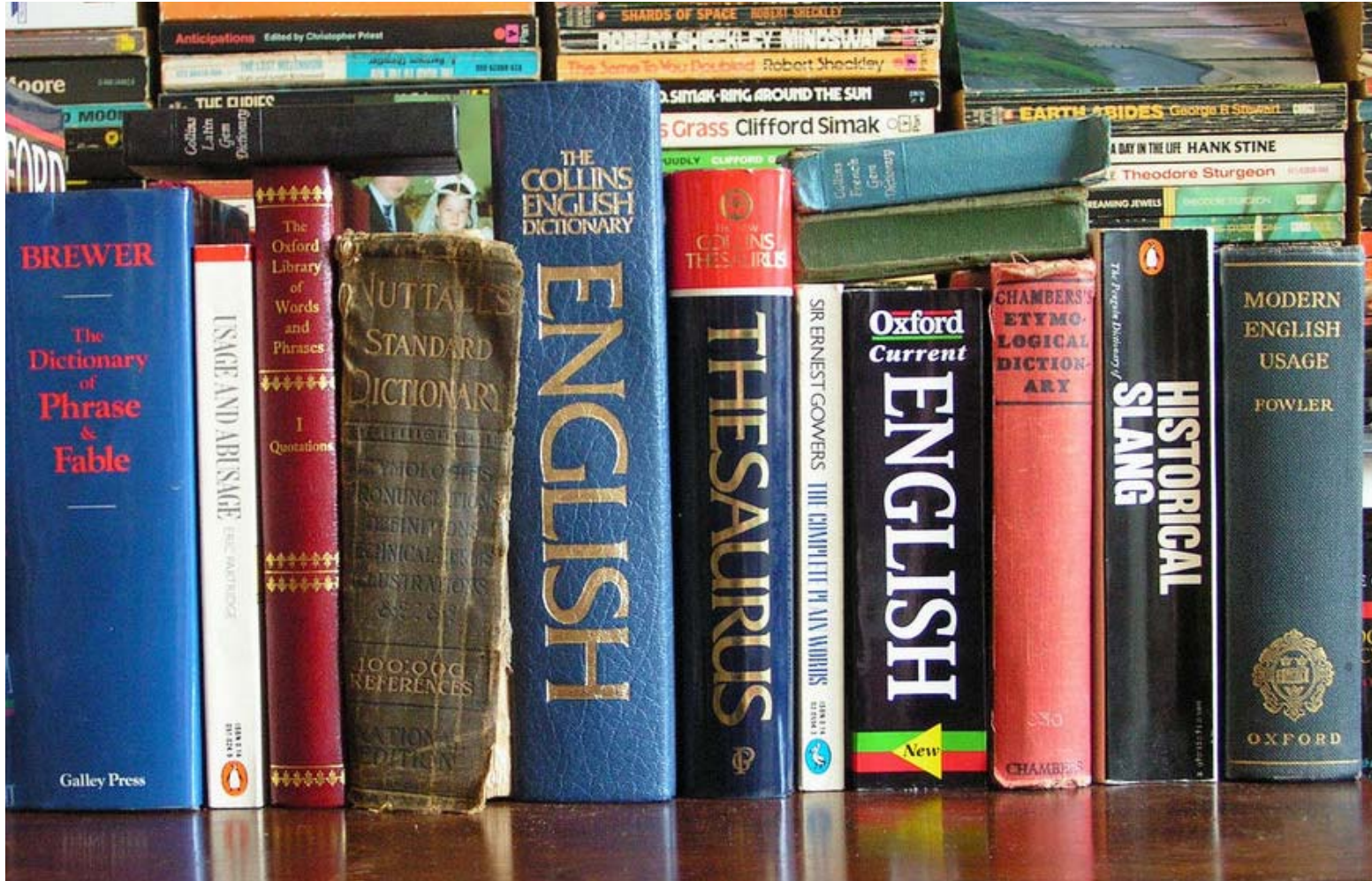
Dom Collection

Loader

CSS Reset, Fonts, Grids



Definitions





Definitions: DHTML / Ajax

- Is **NOT** a specific technology



Definitions: DHTML / Ajax

- Is **NOT** a specific technology
- Is **NOT** inherently inaccessible



Definitions:

Rich Internet Applications (RIAs)

- RIAs are:
 - web apps with features and functionality of traditional desktop applications
 - can be created in various languages: Flash, JavaScript, Java
 - today's talk is focused on JavaScript RIAs

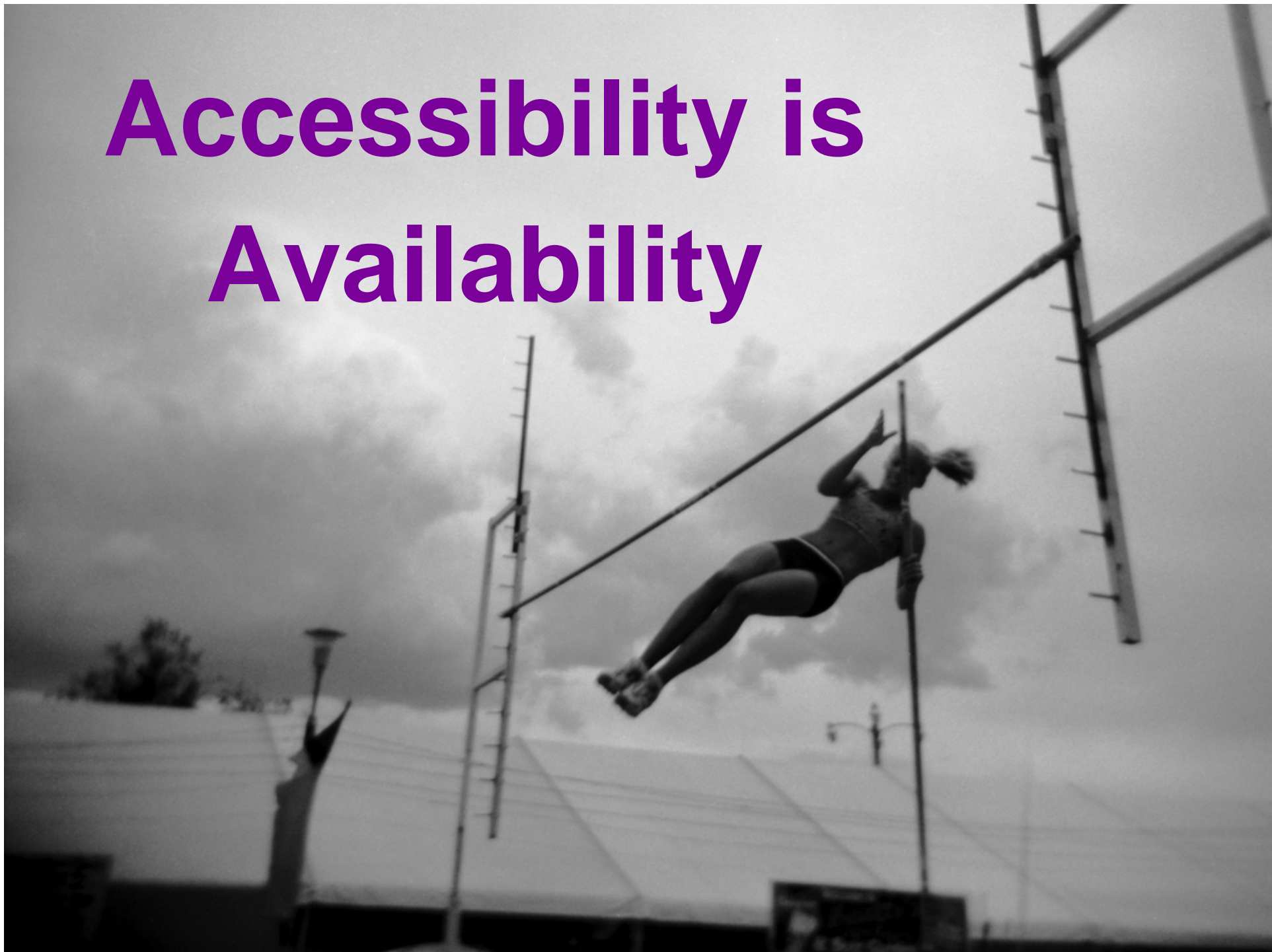


Definitions: Accessibility

- Accessibility is:
 - “A general term used to describe the degree to which a system is usable by as many people as possible without modification”
(cite: [wikipedia](#))
- Often, our focus is on enabling screen-readers specifically
 - However, the resulting work is generally more far-reaching

**Accessibility is
Availability**

Accessibility is Availability



Accessibility is Availability





**“Rich” isn’t new, so what
about desktop accessibility?**



Accessibility on the Desktop

- OS provides a11y API
 - Microsoft's Active Accessibility 2.0 ([MSAA](#))
 - Sun's Java [Access Bridge](#)
 - Accessibility Toolkit for Linux ([ATK](#))
- Assistive Technology talks to OS API
- Result: nearly ubiquitous a11y



So *desktop* accessibility is nearly ubiquitous, but what about *web* accessibility?



Accessibility on the Web (1)

- *Some* information is provided to the desktop API
 - The Document Object Model (DOM) provides static information via semantic elements and attributes
- Form elements announce focus (sometimes)



<http://www.w3.org/Consortium/Points/>

“One of W3C's primary goals is to make these benefits **available to all people**, whatever their hardware, software, network infrastructure, native language, culture, geographical location, or physical or mental ability. “



Accessibility on the Web (2)

- So the picture isn't fully bleak
 - ... but the depth of necessary information is missing:
 - Role, state, actions, caret, selection, children, relations, changes...
 - Input and output communication is missing too:
 - **Keyboard**, focus, blur, change, **updates**.
 - Clunky, see data table and spreadsheets



**So how can we move
forward?**



Characteristics of Techniques

- Don't make it worse
- Provide alternatives
- Learn from other technologies
- Prepare for when a11y tech improves
- Support improvement of a11y tech



Four Techniques – Use Them All

1. Standards-based development
2. Redundant interfaces
3. Faithful and Predictable Ports
4. WAI ARIA aka “Accessible DHTML”

A large, light purple exclamation mark graphic is centered on the slide. The text is overlaid on this graphic.

Standards-Based Development

Don't miss the opportunity TM



Approach 1: Standards-Based Development

- Overview and Definition
 - Create and stand upon a strong foundation
 - Subsequent layers enhance meaningful and structured markup
 - Progressive and unobtrusive enhancement
 - Don't contaminate the neighborhood
 - Be generous – it's your last chance!



Standards-Based Development

Example: Y!News Tab Panel

- Example: Tab-Panel box: complete

Top Stories

AP | Reuters | AFP | USATODAY.com | CSMonitor.com | **NPR** | CNN.com | My Sources

- 🔊 [President Bush Says Signs of Progress in Iraq](#) at NPR - Mon Mar 20, 10:05 PM ET
- 🔊 [U.S. Farmers Prepare for Arrival of Asian Bird Flu](#) at NPR - Mon Mar 20, 6:41 PM ET
- 🔊 [Tagliabue Retiring After 16 Years as NFL Commissioner](#) at NPR - Mon Mar 20, 6:41 PM ET
- 🔊 [Shift in Tactics Seen as Vital to U.S. Victory in Iraq](#) at NPR - Mon Mar 20, 6:41 PM ET
- 🔊 [Iraqi Report Says U.S. Troops Killed Civilians in Raid](#) at NPR - Mon Mar 20, 6:41 PM ET

» **All Top Stories from NPR**

MORE TOP NEWS: [U.S. News & World Report - Photos and Slideshows](#)



Standards-Based Development

Example: Y!News Tab Panel

- Example: Tab-Panel box: no CSS

Top Stories

- *AP*
- *Reuters*
- *AFP*
- *USATODAY.com*
- *CSMonitor.com*
- *NPR*
- *CNN.com*
- *My Sources*

AP

- **Bush Asks U.S. to Look Past Iraq Bloodshed** *AP - Tue Mar 21, 1:50 AM E*
- **Five Deaths Blamed on Midwest Snowstorm** *AP - Tue Mar 21, 2:19 AM ET*
- **Diplomats Fail to Reach Deal on Iran Issue** *AP - Tue Mar 21, 3:42 AM ET*



Standards-Based Development

Example: Y!News Tab Panel

- Example: Tab-Panel box: no JavaScript

```
<div class="headlines">
  <h5>NPR</h5>
  <ul>
    <li><a href="article.html"
      onMouseOut="cancelPreview()" onMouseOver="showPreview(e,o)">
      President Bush Says Signs of Progress in Iraq</a>
      <em>at NPR - <span class=timedate>Mon Mar 20, 10:05 PM ET</span></em>
    </li>
    <li><a href="article.html"
      onMouseOut="cancelPreview()" onMouseOver="showPreview(e,o)">
      U.S. Farmers Prepare for Arrival of Asian Bird Flu</a>
      <em> at NPR - <span class=timedate>Mon Mar 20, 6:41 PM ET</span></em>
    </li>
    ...
  </ul>
</div>
```



Standards-Based Development

Example: Y!News Tab Panel

- Notice:
 - Tab box is really anchored links and lists – well marked up content, available to all
 - Unobtrusive JavaScript doesn't Hijax links when it shouldn't
 - Stretching semantics to provide clues
 - Microformats enrich date, and provide predictable hooks for add-ons



Standards-Based Development

Ex: Y!Photos Ratings & Tags

Yahoo! My Yahoo! Mail Search: Web Search

YAHOO! PHOTOS Welcome, nate.koehley
[Sign Out, My Account] [All My Photos](#) - [View Cart](#) - [H](#)



Home Prints & Gifts View Cart Settings Help Search My Tags... Go

Welcome, Nate! [+ Upload Photos](#) [All My Photos](#) [Add Friends](#)

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

My Latest Photos [\[view all\]](#)




My Stats

Photos uploaded: 221
Tags: 11
Friends: 0

My Tags [\[view all\]](#)

amee and molly, amit, derek, derek

ADVERTISEMENT



Y! LISTEN









Standards-Based Development Example: Y!Games

Explore Yahoo! Games: Click on the dropdown, select a genre and hit GO!

Explore Yahoo! Games GO 78,015 Players Online! Games Home | Video Games

MOBILE GAMES PAUSE II

 Hearts A game after our own hearts! read more... 2,607 Players Online	 Tornado 21® This game will blow you away! read more... 139 Players Online	ARCADE GAMES
 Pyramids Conquer the tri-peak card pyramids! read more... 4,950 Players Online	 Dominoes We have some bones to pick with you. read more... 5,665 Players Online	BOARD GAMES
 JT's Blocks® Blast the blocks to clear the board! read more... 2,786 Players Online	 Solitaire Everyone needs a little me time! read more... Download To Your Phone	CARD GAMES
		OTHER GAMES
		PUZZLE GAMES
		WORD GAMES
		DOWNLOAD GAMES
		MOBILE GAMES
		NEW GAMES



Standards-Based Development Example: Y! Home Page

Get Y! Toolbar Wells Fargo - \$40,000 HELOC for \$295/Month

YAHOO! Web | Images | Video | Audio | Directory | Local | News | Shopping

Search: Web Search

* [Yahoo! Answers: Ask a question](#) | [Answer questions](#)

My Yahoo! My Mail Page Options ▾

- Autos
- Fantasy FB
- Finance
- Fntsy Sports
- Games
- GeoCities
- Groups
- HotJobs
- Maps
- Movies
- Music
- Personals
- Photos

Featured | Entertainment | **Sports** | Life

Oct 23, 2006

King James rules, but ...

In fantasy basketball, drafting LeBron James will make you happy, but should he go first overall? » [Column](#)

- [Player rankings](#)
- [Sign up now](#)
- [Season preview](#)
- [More NBA](#)

Fantasy basketball: Is LeBron worth No. 1 pick?

Did MLB handle Rogers controversy correctly?

NFL: Falcons win a wild one in Hotlanta

» [More Sports](#)

In the News | World | Local | Video

Hi, Nate Sign Out

Mail

Messenger

Radio

Weather
67°F

Local

Horoscopes

Discover the new Lexus LS.
Unprecedented.

All-New Lexus LS - Ad Feedback

Inside Yahoo! Small Business

Get a domain for \$1.99/1st yr



Standards-Based Development Benefits

- Should be doing this regardless
- “With the grain” of web technologies
- Truly available to all
- The foundation of better things
- A step toward a semantic web
- Here to stay (10+ years)



Standards-Based Development Drawbacks

- Doesn't solve every problem
- *Perceived* overhead
- Unobtrusive JavaScript and Hajax are still less familiar techniques
 - Be careful not to step on event handlers
 - Only trap clicks when appropriate
 - Server must reply to both partial and complete requests from the client



Redundant Interfaces

Offer flexible interactions TM



Approach 2: Redundant Interfaces

- Overview and Definition
 - Multiple means of *input*
 - GUI input vs. char input
 - Direct movement of objects vs. configuration-based movement
 - Plain text vs. Auto Complete
 - Tab vs. Arrow Keys



Approach 2: Redundant Interfaces

- Overview and Definition
 - Multiple means of *manipulation*
 - Keyboard vs. Mouse
 - Esc vs. Cancel
 - Drag-drop vs. form-based
 - Ajax vs. HTTP

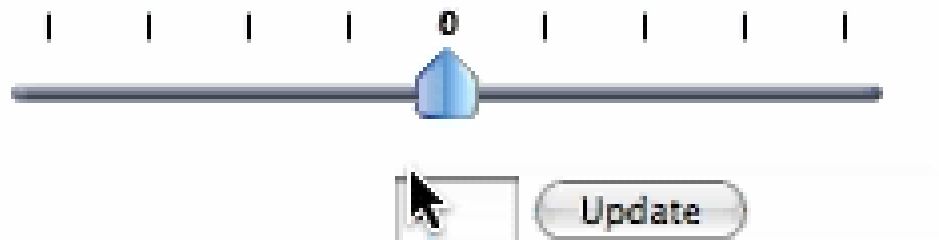


Redundant Interfaces

Example: 1D Slider

<http://developer.yahoo.com/yui/examples/slider/index.html>

- Simple support for vertical and horizontal sliders as a direct-manipulation alternative to input boxes
- Enhances the basic input box, but need not replace it.

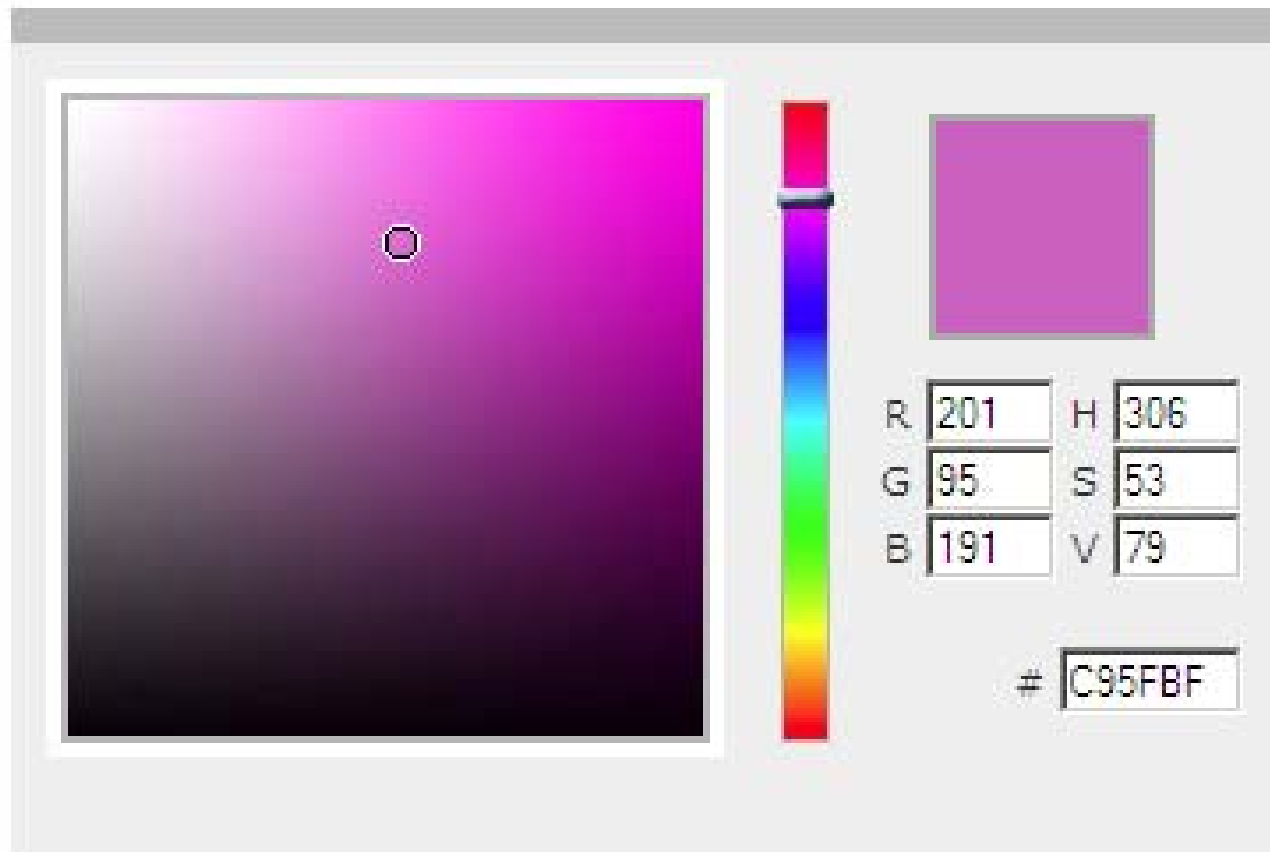




Redundant Interfaces

Example: 2D Slider

<http://developer.yahoo.com/yui/examples/slider/rgb2.html>





Redundant Interfaces

Example: Date Selector

http://developer.yahoo.com/yui/examples/calendar/intl_japan/

YAHOO! TRAVEL JAPAN

Yahoo! JAPAN - ヘルプ たびゲーター

こんにちは、ゲストさん [ログイン](#)

Yahoo!トラベル 海外航空券予約

おふたりで 成田空港 三井住友銀行の外貨両替

[トップ](#) > [海外航空券予約](#) > [アメリカ、カナダ](#) > [アメリカ合衆国](#) > [ヒューストン](#)

[PR]癒しのニュージーランド旅行で豪華賞品&ボーナスマイルをゲット!

出発日別最安料金検索 出発日（当月を含む6か月以内）を選択すると、選択された出発日の前後8日間の最安料金を検索できます。

2005年 10月 23日 検索

このリストから条件を指定して絞り込む

- 出発地: 指定なし
- 料金: 指定なし 円以上 指定なし 円未満
- 座席クラス: エコノミー ビジネス
- 旅行形態: 往復 (帰国便変更不可) 片道
- その他の条件: 直行便 カード決済可能 会、予約可能

日付を選びなさい

10月 2006							11月 2006						
月	火	水	木	金	土	日	月	火	水	木	金	土	日
25	26	27	28	29	30	1	30	31	1	2	3	4	5
2	3	4	5	6	7	8	6	7	8	9	10	11	12
9	10	11	12	13	14	15	13	14	15	16	17	18	19
16	17	18	19	20	21	22	20	21	22	23	24	25	26
23	24	25	26	27	28	29	27	28	29	30	1	2	3
30	31	1	2	3	4	5	4	5	6	7	8	9	10

検索 条件を詳しく



Redundant Interfaces

Example: YUI Menu from Markup

<http://developer.yahoo.com/yui/examples/menu/leftnavfrommarkup.html>

Website Left Nav Example (with submenus built from markup) [[Examples Home](#)]

The screenshot shows a navigation menu with the following structure:

- Communication >
- Shopping >
- Entertainment >
- Information >
- PIM >
 - Member Directory
 - Messenger
 - Mobile
 - Photos

The 'PIM' submenu is expanded, showing a secondary submenu with the following items:

- 360°
- Alerts
- Avatars
- Groups
- Internet Access
- Yahoo! Mail
- Yahoo! Address Book
- Yahoo! Calendar
- Yahoo! Notepad

A note in the background states: "NOTE: This example demonstrates how to build a menu with submenus created using existing markup. You can add submenus to a menu using JavaScript."



Redundant Interfaces

Example: YUI Panel from Markup

- Motion Protection
 - <http://developer.yahoo.com/yui/examples/container/panel-aqua.html>
- Technology Protection
 - <http://yuiblog.com/blog/2006/09/22/yahoo-devday-schedule/>



Redundant Interfaces

Example: Yahoo! home page

Get Y! Toolbar Wells Fargo - \$40,000 Home Equity Line of Credit for \$295/Month

YAHOO! Web | Images | Video | Audio | Directory | Local | News | Shopping

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[Yahoo! Answers: Ask a question](#) | [Answer questions](#)

My Yahoo! My Mail Page Options ▾

- Autos
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- Finance
- Fntsy Sports
- Games
- GeoCities
- Groups
- HotJobs
- Maps
- Movies
- Music
- Personals
- Photos
- Real Estate
- Shopping

FeaturedEntertainmentSportsLife


Oct 23, 2006





📺 Showdown in Big D


Yahoo! Sports' experts pick the winner of tonight's NFC East battle between the Giants and Cowboys. [» Watch](#)

- [Standings](#)
- [Cris Carter's Six Points](#)
- [Follow the game live](#)
- [More NFL](#)

NFL: Giants, Cowboys clash on 'Monday Night'

Fantasy basketball: Is LeBron worth No. 1 pick?

Did MLB handle Rogers controversy correctly?

Michigan, Ohio State sit atop BCS ranking

[» More Sports](#)

Hi, **Nate** Sign Out

Mail


Messenger

Radio

Weather
60°F


Local

Horoscopes



All-New Lexus LS - Ad Feedback

Inside Yahoo! Small Business



Get a domain for \$1.99/1st yr

- Custom domain name
- Free 24/7 phone support
- Starter web page



Redundant Interfaces

Ex: Drag-n-Drop vs. Edit Flow

1Y **YAHOO!** Welcome, [nate.koechley](#)
[[Sign Out](#), [My Account](#)]

Yahoo! Mail More Yahoo! ?he

BIG FAMILY FUN
ALL WEEK, ALL PARKS! For less than 1 day at Disney®
Attractions Nightlife Hotels Trip planner
Get tickets & info
Roll over to expand. UNIVERSAL Orlando RESORT

Category: **Web** | [Images](#) | [Video](#) | [Local](#) | [News](#) | [Shopping](#)

Search:

Mon, Oct 23, 08:40 p
[Wells Fargo-\\$40,000 HELOC for \\$295/Mor](#)

[Add Content](#) [Change Layout](#) [Change Colors](#) Show: **All Items** Hide Read Items Select Page: [nates yahoo](#)

▼ **th Treehugger**

- [The Good Life In New Zealand](#) - 6 hours ago
- [Most Huggable](#) - 7 hours ago
- [Real Toyota Hybrid Drivers Needed for National Campaign](#) - 8 hours ago
- [MentalFloss: A Short History of Air Pollution](#) - 8 hours ago
- [Ecolnoa: Call-Out for Israel's Second Environmental Film Fete](#) - 9 hours ago

▼ **The Onion**

- [Area Man Misses Rental Car](#) - 22 hours ago
- [Martin Scorsese's Next Film To Be Three Hours Of Begging For Oscar](#) - 22 hours ago

▼ **Calendar**

Today [Add Event](#)
No events scheduled.

Tuesday [Add Event](#)
No events scheduled.

Wednesday [Add Event](#)
12:15 pm: [Product Forum: Connected Life Strategy, C5](#)

◀ **October 2006** ▶

▼ **Scoreboard**

TODAY
no games for selected teams

YESTERDAY

▼ **NFL**

Arizona vs. Oakland	9
Green Bay vs. Miami	22
Green Bay vs. Miami	34
Miami	24

SATURDAY



Redundant Interfaces Benefits

- Better for everybody
 - Keyboard is important for ALL users
 - Let users choose from multiple task flows
- Transfer the complete set of expectations from the desktop to the browser
- Works today



Redundant Interfaces Drawbacks

- Insufficient communication with accessibility APIs on the desktop
- Dual experiences/interfaces may pressure goals of parity
- Requires development of two experiences
 - But not 2x effort!
 - **Can actually benefit development process**



Faithful and Predictable

Preserve the illusion

TM



Faithful and Predictable Ports: Faithful and Predictable Ports

- Overview and Definition
 - We must capture this moment in time
 - Learnability
 - Discoverability
 - Completeness is critical



Faithful and Predictable Ports: Example: Full Selection Model

Yahoo! My Yahoo! Mail Search: Web Search

YAHOO! PHOTOS Welcome, nate.koechley
[Sign Out, My Account] [All My Photos](#) - [View Cart](#) - [Help](#)

Home Prints & Gifts View Cart Settings Help

Search My Tags... Go






Upload Photos

All My Photos

Slideshow Create Share Edit Prints & Gifts

Drag photos into this tray and choose a task above.

Sort By: Date (Newest First) Photos: 1-100 / 221 | Select

 DSCN0103	 DSCN0100	 DSCN0099	 DSCN0098	 DSCN0096
---	--	---	---	---

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
- WM_natek
- Yahoo Year End Pa...
- Yahoo! Photo Album

<http://photos.yahoo.com/>



Faithful and Predictable Ports: Ex: Full Keyboard Control

Menu Item 0	>	PRIMARY: Lorem ipsum dolor sit : Nunc quam elit, posuere nec, auct massa sit amet dignissim cursus, Pellentesque orci arcu, eleifend at
Menu Item 1	>	
Menu Item 2	>	
<u>Menu Item 3</u>	>	id er os h s per us le is ac
Menu Item 4	>	Menu Item 3 - Submenu Item 0
Menu Item 5	>	Menu Item 3 - Submenu Item 1
Menu Item 6	>	<u>Menu Item 3 - Submenu Item 2</u>
Menu Item 7	>	Menu Item 3 - Submenu Item 3
Menu Item 8	>	Menu Item 3 - Submenu Item 4
Menu Item 9	>	Menu Item 3 - Submenu Item 5
		Menu Item 3 - Submenu Item 6
		Menu Item 3 - Submenu Item 7
		Menu Item 3 - Submenu Item 8
		Menu Item 3 - Submenu Item 9

FOOTER: Lorem ipsum dolo
rhoncus quis, do

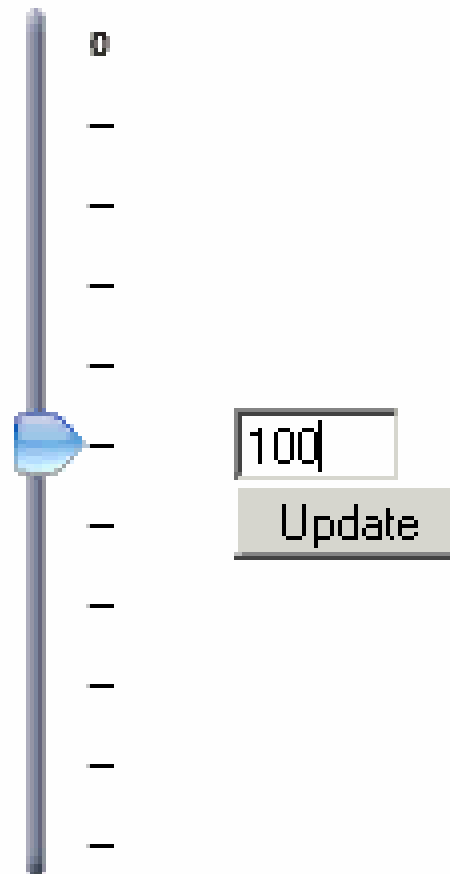
elit.
sim,



Faithful and Predictable Ports: Ex: Full Keyboard Control

Example:

Slider fortified
with keyboard





Faithful and Predictable Ports: Ex: Full Keyboard Control


11 a.m.	Maps API: Vince Maniago / Mirek Grymuza / Chuck Freedman	An Inconvenient API: The Theory of the DOM Douglas Crockford	Hands On: The YUI Animation Utility	Hands On: Write a Yahoo! Messenger Plug-in Today	Author Jack Slocum Video: Iain Lamb's Hack Day Talk, "The New Hacker's Toolkit" Video: Matt Sweeney's Hack
noon-1 p.m.	<i>get lunch</i>				
1-2 p.m.	Yahoo! Developer Day Keynote (plenary) Bradley Horowitz				
2:30 p.m.	The Flickr API: Cal Henderson	Web 2.0: Getting It Right the Second Time Around Matt Sweeney	Hands On: The YUI Menu Control	Mash-Up Full Build a Proxy Search App Under An Hour Kent Brewster	Author Jack Slocum Video: Iain Lamb's Hack Day Talk, "The New Hacker's Toolkit" Video: Matt Sweeney's Hack
3:30 p.m.	Exceptional Performance: Steve Souders /	Getting Rich with PHP 5 Rasmus Lerdorf	Hands On: The YUI Panel & Dialog Controls	Hands On: T Utility	

[close](#)
<esc>

The Flickr API

Cal Henderson, Flickr Engineering Manager

Flickr became an icon of the new breed of web applications for many reasons, but one significant element of Flickr's success was its API. Flickr welcomed developers into the fold and made it possible to harness the beauty and power of the collective photostream in diverse applications. Cal Henderson of Flickr will introduce you to the Flickr API and to many of the uniquely compelling opportunities it creates.



NETWORK



Faithful and Predictable Ports: Benefits

- More options for *everybody*
- Better discoverability
- Better usability
- Supports many working styles
- Establish the new platform



Faithful and Predictable Ports: Drawbacks

- Isn't always easy
- Seems heavier and/or more complex
- Not always the path of least resistance





Rich Interfaces Require Sophisticated Definitions

“Assistive technologies ... requires information about the semantics of specific portions of a document in order to present those portions in an accessible form.

For example, to provide reliable access to a form element, a tool must also be able to recognize the state of that element (for example, whether it is checked, disabled, focused, collapsed, or hidden).”

<http://www.w3.org/2006/09/aria-pressrelease.html>



Approach 4: “Accessible DHTML”

- Overview and Definition
 - IBM technology, now in W3C and open
 - <http://www.w3.org/TR/aria-roadmap/>
 - <http://www.w3.org/WAI/PF/adaptable/HTML4/embedding-20060318.html>
 - Allows embedded role and state metadata in (X)HTML documents
 - Uses namespace extensions to XHTML 2, but
 - Techniques allow most functionality in HTML 4 documents, as of today
 - Communicate directly with the desktop API



The Virtual Buffer

- Screen readers “scrape” a page into a Virtual Buffer.
- Facilitates knowledge of the page
 - “20 links”, “list, 14 items”, “four headers”



The Virtual Buffer and Script

- Handles basic script:
 - `click`, `keypress`, `mouseover`
 - For these, new content is exposed
- Ajax content isn't natively exposed in reaction to these events
 - For example, doesn't know `onreadystatechange`



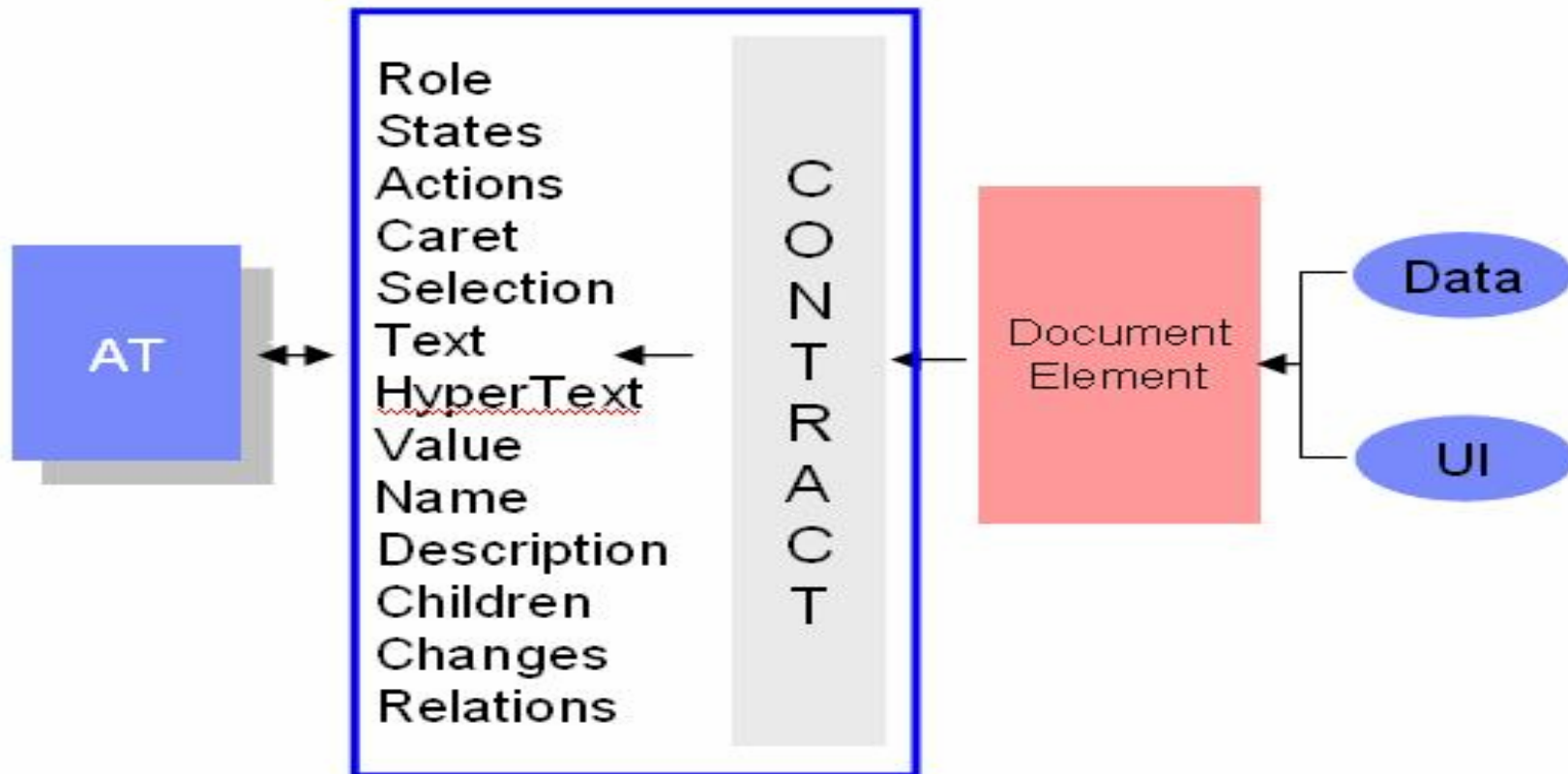
Content has changed!

- focus on updated content
 - tabindex -1
 - Omits from tab order
 - Not fully cross-browser
- Works, but unsophisticated



Role Taxonomy for Accessible Adaptable Applications

<http://www.w3.org/WAI/PF/GUI/>





States and Adaptable Properties Module

<http://www.w3.org/WAI/PF/adaptable>

- checked
- iconed
- disabled
- readonly
- multiselectable
- domactive
- zoom
- expanded
- selected
- pressed
- important
- required
- haseffect
- valueNew
- valuemax
- valuemin
- step
- invalid
- describedby
- labeledby
- hasparent
- haschild
- haspopup
- alternatestyle
- tabindex
- flowto
- flowfrom
- controls
- controlledby
- subpageof



“Accessible DHTML” Example: XHTML

```
<html xmlns:wairole="/w3.org/2005/01/wai-  
rdf/GUIRoleTaxonomy#"  
xmlns:waistate="/w3.org/2005/07/aaa">  
  
<span id="slider" class="myslider"  
role="wairole:slider"  
waistate:valuemin="0"  
waistate:valuemax="50"  
waistate:valuenow="33"> </span>
```



“Accessible DHTML” Example: HTML 4

```
<script type="text/javascript"  
src="enable.js"></script>  
  
<span id="slider"  
  class="myslider myselector2  
  slider  
  valuelin-0 valuemax-50 valuenow-33"  
  tabindex="0" >  
</span>
```



“Accessible DHTML” Benefits

- Utilizes powerful and well-understood desktop API
- Map controls, events, roles and states directly to powerful and well-understood desktop accessibility APIs
- Standard and predictable enrichment of markup
- Allows ARIA on top of RIA



“Accessible DHTML” Drawbacks

- Requires recent-version of assistive technology software (e.g., screen reader)
- Only works in Mozilla’s Firefox 1.5+ today
 - Not in Microsoft’s IE7
- XHTML required for full power
 - HTML does not allow multiple states, for example



Need Your Help

- This is an important development
 - Thanks for IMB/Mozilla/W3C
 - Becky Gibson
 - Aaron Leventhal
 - We can thank them with adoption and a steady commitment
 - We can help these small companies.



Availability and Browser Support

“Graded Browser Support” TM



The Dirty Truth

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

– Douglas Crockford



Binary Browser Support

- Do I need to support ____ on this project?



Graded Browser Support: Two Key Ideas (1)

1) Support \neq Same

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



Graded Browser Support: Two Key Ideas (2)

2) Support must not be binary!

Our primary goal is availability.

- Don't exclude anyone
- Welcome all visitors

The screenshot shows a Mozilla Firefox browser window with the title "Yahoo! Developer Network: Graded Browser Support - Mozilla Firefox". The address bar contains the URL "http://developer.yahoo.com/yui/articles/gbs/gbs.html". The page content includes the Yahoo! Developer Network logo, the article title "Graded Browser Support", the author "Nate Koechley, Senior Web Developer at Yahoo! Inc.", and the date "February 13, 2006". The main text discusses the evolution of browser support from binary to graded, and lists two fundamental ideas of graded browser support: a broader definition of "support" and the notion of "grades" of support. A section titled "What Does 'Support' Mean?" follows, explaining that support does not mean identical experiences for all users.

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>



Graded Browser Support: General Best Practice

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



Final Thoughts

- It's possible to give the new richness to everybody, and morally correct.
 - More users + good PR = win win
- There's no excuse for not doing this, plus it's not that hard.
- Together we'll get there faster.



Thanks!

nate.koechley.com/talks/2006/11/refresh06/RIA_Accessibility/

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 - <http://nate.koechley.com/blog>
- Yahoo! Developer Network and Y! UI Blog:
 - <http://developer.yahoo.com>
 - <http://developer.yahoo.com/yui>
 - <http://developer.yahoo.com/ypatterns>
 - <http://www.yuiblog.com>
 - <http://groups.yahoo.com/group/ydn-javascript>
- Creative Commons Photos from Flickr:
 - <http://www.flickr.com/photos/tgray/48830193/>
 - <http://www.flickr.com/photos/macwagen/90472902/>
 - <http://www.flickr.com/photos/zen/157658496/>



We're Hiring!

Josie Aguada: jaguada@yahoo-inc.com

Usual suspects:

JavaScript, PHP, CSS, HTML, ActionScript...