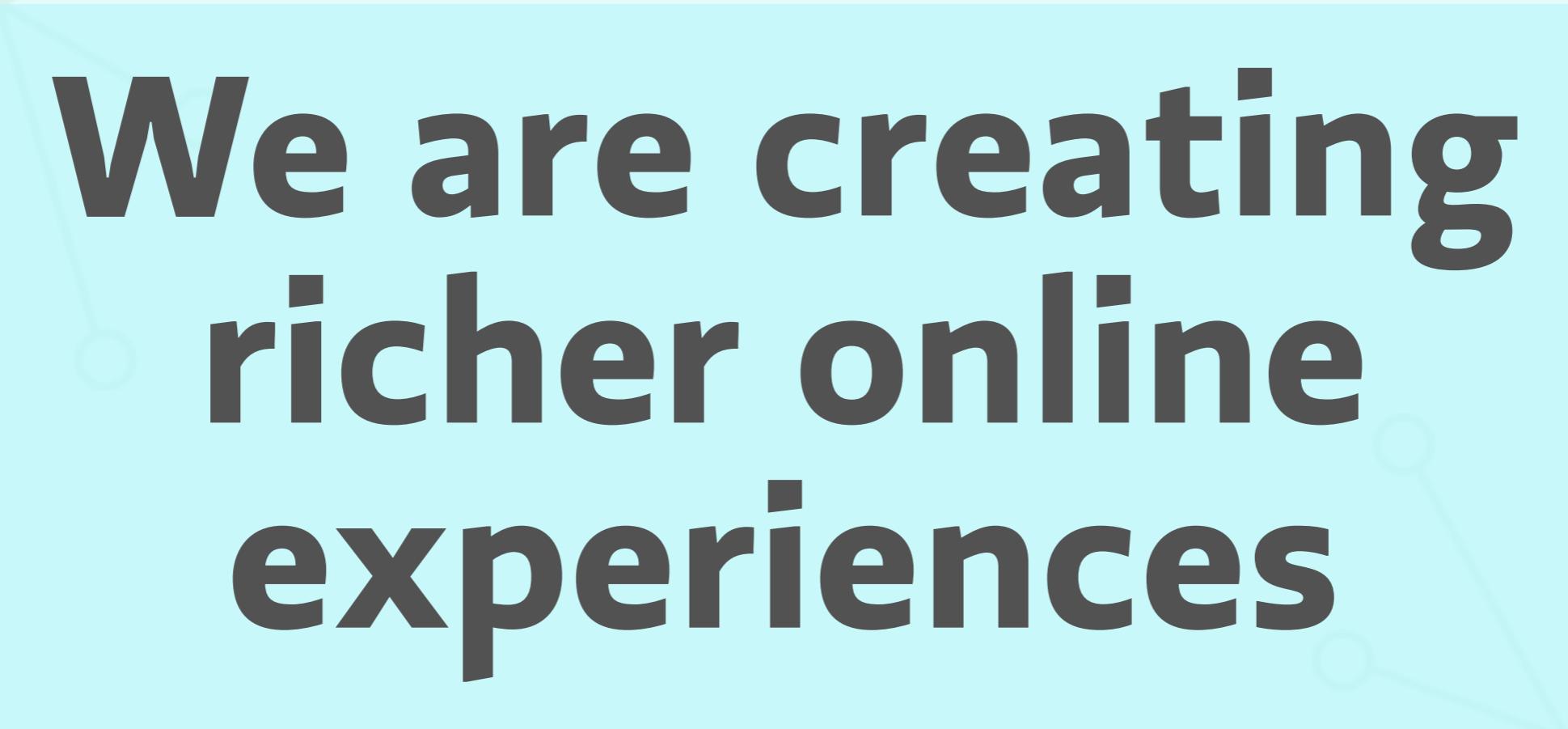


Progressive Enhancement with ARIA

Aaron Gustafson



easy designs



We are creating
richer online
experiences



A photograph of a young boy with light hair, wearing a blue baseball cap and a dark blue and white horizontally striped t-shirt. He is leaning forward, looking down at a yellow and white height restriction sign attached to a metal railing. The sign features red text that reads "YOU MUST BE THIS TALL TO RIDE WITH AN ADULT" above a large red upward-pointing arrow. The background shows a metal fence and some foliage.

YOU MUST BE THIS TALL
TO RIDE WITH AN ADULT

...and the barriers
which prohibit them.

Accessibility is crucial



A photograph of a man with white hair and glasses, wearing a white t-shirt with a blue graphic, walking on a city sidewalk. He is using a long white cane with a red tip to navigate his surroundings. In the background, there are buildings, a green awning for "HANS FARM MARKET", and other people walking. The image has a green overlay at the top.

Google is a voracious consumer
of the web. And it's *blind*.



**But accessibility
isn't only about
supporting
screen readers.**

What if you can't use a mouse?



up to date now — both [here](#) and [here](#). Like most months I account for new user agents that come up this time with a new sightings in the "fun" category:

- Opera/9.00 (Nintendo Wii; U; ; 1309-9; en)
- Mozilla/5.0 (PLAYSTATION 3; 1.00)

[Wondering if that means I get to write off my Wii as a business loss?]

Comment

Categories: [web](#) [meta](#)

Tags: [browsers](#) [ps3](#) [statistics](#) [user agents](#) [web](#) [web development](#)

What if you don't see a change?



We can and must build better.

Building better

Every great experience on the web begins with two key things: clear, well-written prose and the HTTP protocol.

Text & HTTP

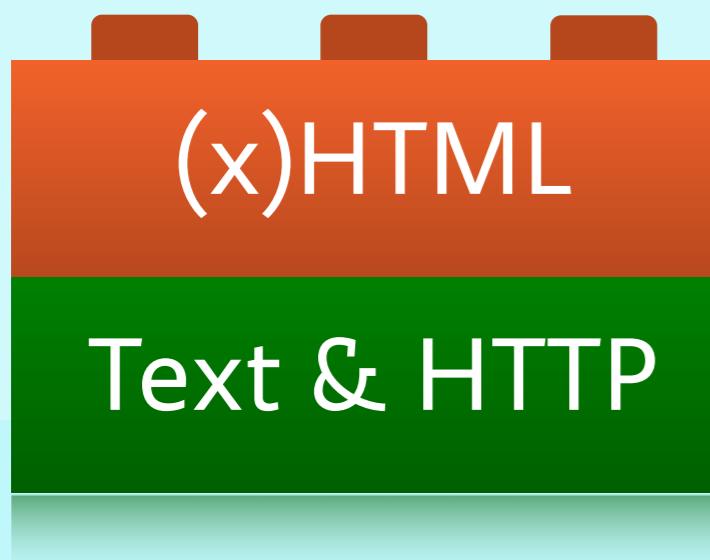
Building better

Semantics (markup) convey the underlying meaning of the content...



Building better

Semantics (markup) convey the underlying meaning of the content...
but if poorly applied, meaning can be obscured.



Building better

CSS can enhance usability through visual clues...



Building better

CSS can enhance usability through visual clues...
but it can also reduce accessibility if misused.



Building better

JavaScript can be used to build
more intuitive interfaces...



Building better



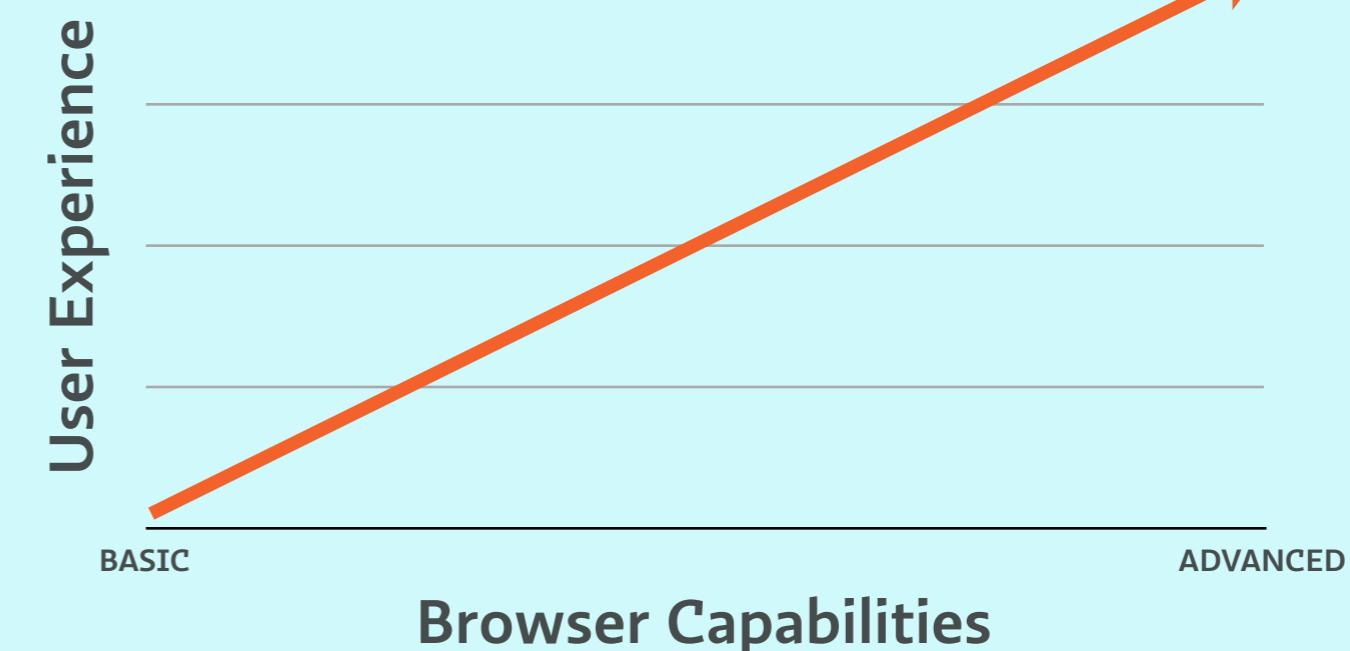
JavaScript can be used to build more intuitive interfaces... but it cannot be relied on 100% of the time.

Building better



WAI-ARIA extends the semantics of the document to provide additional insight into the state of the interface and how to interact with it.

Progressive Enhancement

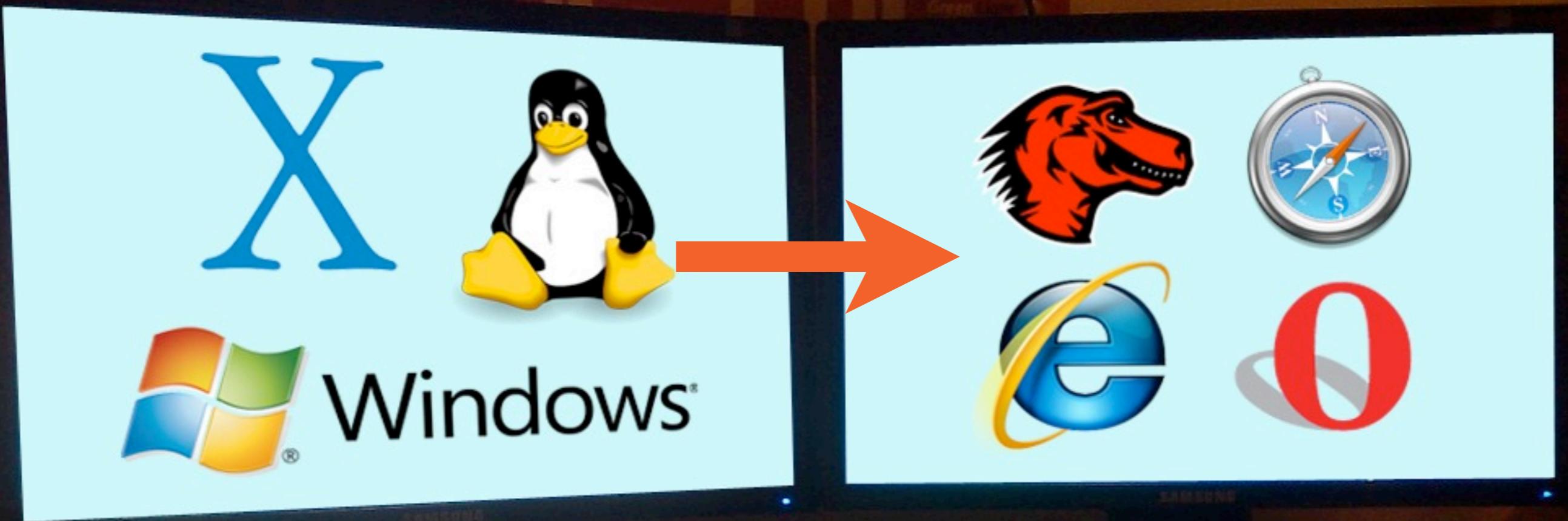


WAI-ARIA is a new(ish) tool





Semantics+



Map OS concepts to the web



<http://tinyurl.com/cwyvny>
<http://habilis.net/validator-sac/>



Call attention to important pieces

Structural Roles

The screenshot shows the homepage of the Accessibility Summit website. At the top, there's a navigation bar with links for Home, About, Schedule, Speakers, and Sponsorships. Below the navigation is a large, bold title "ACCESSIBILITY SUMMIT". Underneath the title, a subtitle reads "Online, Live Accessibility Conference Thursday Sept. 30". There are several testimonial quotes from past attendees, each with a small profile picture. One quote from Russ Weakley of Max Design, 2010 CSS-Summit, says: "An absolutely fantastic event, well done—will definitely be back for more!" Another quote from John-David Dalton, 2010 Web Optimization Summit, says: "This conference was a load of fun, I loved the instant feedback from the speakers and the atmosphere." Below the testimonies is a section titled "WHY ATTEND?" with a list of benefits. To the right of this list is a graphic of a pink movie ticket stub with "ADMIT ONE" printed on it. Further down the page is a section titled "SESSIONS" with a specific session titled "Is Universal Design Still Possible? by Matt May". A small photo of Matt May is shown next to the session title. The page also features logos for sponsors like deque and WGBH, and mentions live captioning by WGBH.

Structural Roles

The screenshot shows the homepage of the Accessibility Summit website. At the top, there's a navigation bar with links for 'HOME', 'SESSIONS', 'SPONSORS', 'ABOUT', 'CONTACT', and 'LOG IN'. Below the navigation is a large banner with the text 'ENVIRONMENTS FOR HUMANS' and 'ENVIRONMENTS FOR HUMANS A THURSDAY JUNE 24, 2010'. The main title 'ACCESSIBILITY SUMMIT' is prominently displayed in large, bold, gold letters. Below the title, it says 'Online, Live Accessibility Conference Thursday Sept. 30'. There are several testimonial quotes from past attendees, such as 'An absolutely fantastic event, well done—will definitely be back for more!' by Russ Weakley of Max Design, 2010 CSS-Summit. To the right of the text is a graphic of a pink movie ticket stub with 'ADMIT ONE' printed on it. Below the ticket stub, the text 'PURCHASE YOUR TICKETS NOW!' is followed by details about ticket prices. The page also features sections for 'WHY ATTEND?' with a bulleted list of benefits, 'SESSIONS' with a featured session titled 'Is Universal Design Still Possible?' by Matt May, and a photo of Matt May. Logos for sponsors like deque and WGBH are visible, along with mentions of live captioning by WGBH and in-kind sponsorship by UF Web Administration.

}] role="banner"

Structural Roles



role="main"

Structural Roles

The screenshot shows the Accessibility Summit website. At the top, there's a navigation bar with links for Home, About, Schedule, Speakers, and Sponsorships. Below the navigation is a large banner with the text "ENVIRONMENTS FOR HUMANS" and "ACCESSIBILITY SUMMIT". Underneath the banner, it says "Online, Live Accessibility Conference Thursday Sept. 30". There are several testimonial quotes from attendees like Russ Weakley and John-David Dalton. A section titled "WHY ATTEND?" lists benefits such as no travel hassle and live experts. Another section titled "SESSIONS" features a session titled "Is Universal Design Still Possible?" by Matt May, which includes a photo of him and a short description. The entire "SESSIONS" block is highlighted with a red rectangular box. To the right of this box, a red arrow points towards the text "role='article'".

role="article"

Structural Roles



— role="complementary"

Structural Roles

The screenshot shows the homepage of the Accessibility Summit website. At the top, there's a navigation bar with links for 'Home', 'About', 'Sponsorships', 'Speakers', 'Sessions', 'Blog', 'Contact', and 'Logout'. Below the navigation is a large banner with the text 'ENVIRONMENTS FOR HUMANS' and 'ACCESSIBILITY SUMMIT'. The main headline reads 'Online, Live Accessibility Conference Thursday Sept. 30'. There are several testimonial quotes from speakers like Russ Weakley and John-David Dalton. A section titled 'WHY ATTEND?' contains a list of benefits, which is highlighted with a red rectangular box and a red arrow pointing to it from the text 'role="list"'. Below this is a section for 'SESSIONS' featuring a session titled 'Is Universal Design Still Possible?' by Matt May. The page also includes logos for sponsors like deque, WGBH, and UF Web Administration, along with social media sharing buttons.

role="list"

Structural Roles



role="list"

Structural Roles

The screenshot shows the homepage of the Accessibility Summit website. At the top, there's a navigation bar with links for Home, About, Schedule, Speakers, and Sponsorships. Below the navigation is a large banner with the text "ENVIRONMENTS FOR HUMANS" and "ACCESSIBILITY SUMMIT". The main headline reads "Online, Live Accessibility Conference Thursday Sept. 30". There are several testimonial quotes from speakers like Russ Weakley and John-David Dalton. A section titled "WHY ATTEND?" lists benefits such as no travel hassle and live experts. Another section titled "SESSIONS" features a session titled "Is Universal Design Still Possible? by Matt May". A photo of Matt May is displayed next to the session title. The footer contains logos for deque, WGBH, and UF Web Administration, along with social media sharing buttons.

role="list"

Structural Roles

deque

Live Captioning by

WGBH

In-Kind Sponsorship by

UF Web Administration

SESSIONS

Is Universal Design Still Possible?

by Matt May



The web platform has changed a lot over the last few years. Barely three years ago, the iPhone was the biggest challenge for practitioners of universal design.

In 2010, though, there are phones, tablets, new browsers and almost innumerable operating systems, each with their own capabilities and limits. Not to mention the needs and preferences of seniors and people with disabilities.

How can you create beautiful sites that are accessible by mouse, keyboard, touch and screen reader, while using the best features of HTML5 and CSS3? We will apply the lessons of the iPhone and iPad, learn about the challenges of HTML5, and see what is necessary to create a single site for everyone.

Mobile Accessibility

by Derek Featherstone



The popularity of mobile technology is growing about as fast as mobile companies can produce new smartphones. Maybe even faster.

In this session, we'll look at how various mobile platforms have evolved in terms of accessibility for people with disabilities.

You'll learn about the accessibility features of the major mobile platforms as well as the features available to both the user and the developer for delivering accessible web content and applications.

role="list"

Structural Roles

The screenshot shows a conference website with a dark background and diagonal stripes. At the top, there are logos for deque, Live Captioning by WGBH, and In-Kind Sponsorship by UF Web Administration. Below this, the word "SESSIONS" is partially visible. Two sessions are listed:

- Is Universal Design Still Possible?** by Matt May. This session is highlighted with a red border. It features a photo of Matt May and a summary: "The web platform has changed a lot over the last few years. Barely three years ago, the iPhone was the biggest challenge for practitioners of universal design. In 2010, though, there are phones, tablets, new browsers and almost innumerable operating systems, each with their own capabilities and limits. Not to mention the needs and preferences of seniors and people with disabilities. How can you create beautiful sites that are accessible by mouse, keyboard, touch and screen reader, while using the best features of HTML5 and CSS3? We will apply the lessons of the iPhone and iPad, learn about the challenges of HTML5, and see what is necessary to create a single site for everyone."
- Mobile Accessibility** by Derek Featherstone. It features a photo of Derek Featherstone and a summary: "The popularity of mobile technology is growing about as fast as mobile companies can produce new smartphones. Maybe even faster. In this session, we'll look at how various mobile platforms have evolved in terms of accessibility for people with disabilities. You'll learn about the accessibility features of the major mobile platforms as well as the features available to both the user and the developer for delivering accessible web content and applications."

`role="listitem"`

Structural Roles

The screenshot shows a dark-themed website for purchasing tickets. At the top, it says "PURCHASE TICKETS". Below that is a "Ticket Information" section enclosed in a red box. This section contains a table with columns for Ticket Type, Sales End, Price, Fee, and Quantity. It lists four ticket types: "Individual Ticket - Early-Bird", "Meeting Room - Early Bird", "Individual Ticket", and "Meeting Room". The "Individual Ticket" row has a quantity selector set to 2. Below the table is a "Enter Discount Code" input field. Further down are payment method icons for PayPal, BANK, AMEX, MASTERCARD, and VISA, followed by a "Order Now >" button. At the bottom of the red box is a note about discount codes and an "Apply Discount" button.

HOW DOES IT WORK?

Once you are registered, you will receive a follow-up email to confirm your reservation. Later on, as the event draws near, you will receive a more detailed message, with the full schedule and other helpful information to help you take full advantage of your conference-going experience and plan your day.

On the day of the conference, you will receive an email invitation about 45 minutes before everything starts. Click on the enclosed link to sign in and enter the virtual meeting space. Once you are signed in, you'll be able to see and hear the presentations as they happen, ask questions as needed and chat with the other attendees if you like!

Technical Specifications: to attend The Summit, you will need a modern web browser (Firefox 1.5, IE 6 & Safari 2 or newer, for example) and a recent version of the Adobe Flash Player. Follow this link to run our system diagnostic (opens in a new window). It will let you know right away which plug-ins, if any, you will need to update before the event.

Still have questions? Contact us at e4h@heatvision.com if there's anything else you'd like to know.

Where Web Designers Come To Rock™

© 2010 [environments for humans](#) | Send all inquiries to e4h@heatvision.com

role="form"

Structural Roles

The screenshot shows a ticket purchase interface. At the top, it says "PURCHASE TICKETS". Below that is a "Ticket Information" section with a table:

TICKET TYPE	SALES END	PRICE	FEE	QUANTITY
Individual Ticket - Early-Bird more info	Sep 30, 2010	\$149.00	\$0.00	Sold Out
Meeting Room - Early Bird more info	Sep 30, 2010	\$449.00	\$0.00	Sold Out
Individual Ticket more info	Sep 30, 2010	\$179.00	\$0.00	<input type="button" value="+ 1"/>
Meeting Room more info	Sep 30, 2010	\$479.00	\$0.00	<input type="button" value="+ 1"/>

Below the table is a "Enter Discount Code" input field. Underneath that is a payment method selection bar with icons for PayPal, BANK, AMEX, MASTERCARD, VISA, and a "Order Now" button.

At the bottom, there's a "Do you have a discount code? You are so lucky! Enter it here:

A large red box highlights a section titled "HOW DOES IT WORK?". Inside this box, there are three columns of text:

- Once you are registered, you will receive a follow-up email to confirm your reservation. Later on, as the event draws near, you will receive a more detailed message, with the full schedule and other helpful information to help you take full advantage of your conference-going experience and plan your day.
- As needed and chat with the other attendees if you like!
- Technical Specifications: to attend The Summit, you will need a modern web browser (Firefox 1.5, IE 6 & Safari 2 or newer, for example) and a recent version of the Adobe Flash Player. Follow this link to run our system diagnostic (opens in a new window). It will let you know right away which plug-ins, if any, you will need to update before the event.

Still have questions? Contact us at e4h@heatvision.com if there's anything else you'd like to know.

At the very bottom, it says "Where Web Designers Come To Rock™" and includes a small logo and copyright information.

role="article"

Structural Roles

The screenshot shows a ticket purchase interface. At the top, it says "PURCHASE TICKETS". Below that is a "Ticket Information" section with a table:

TICKET TYPE	SALES END	PRICE	FEE	QUANTITY
Individual Ticket - Early-Bird more info	Sep 30, 2010	\$149.00	\$0.00	Sold Out
Meeting Room - Early Bird more info	Sep 30, 2010	\$449.00	\$0.00	Sold Out
Individual Ticket more info	Sep 30, 2010	\$179.00	\$0.00	<input type="button" value="+ 1"/>
Meeting Room more info	Sep 30, 2010	\$479.00	\$0.00	<input type="button" value="+ 1"/>

Below the table is a "Enter Discount Code" input field. Underneath that is a payment method selection bar with icons for PayPal, BANK, AMEX, MASTERCARD, VISA, and a "Order Now" button.

At the bottom, there's a discount code input field with a "Apply Discount" button.

HOW DOES IT WORK?

Once you are registered, you will receive a follow-up email to confirm your reservation. Later on, as the event draws near, you will receive a more detailed message, with the full schedule and other helpful information to help you take full advantage of your conference-going experience and plan your day.

On the day of the conference, you will receive an email invitation about 45 minutes before everything starts. Click on the enclosed link to sign in and enter the virtual meeting space. Once you are signed in, you'll be able to see and hear the presentations as they happen, ask questions as needed and chat with the other attendees if you like!

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Still have questions? Contact us at e4h@heatvision.com if there's anything else you'd like to know.

Where Web Designers Come To Rock™

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}] role="contentinfo"

Structural Roles

Document Structure

article
columnheader
definition
directory
document
group

heading
img
list
listitem
math
note

presentation
region
row
rowheader
separator

Landmarks

application
banner
complementary

contentinfo
form
main

navigation
search

Explain what something is & how it works



Widget Roles

```
<span role="button">OK</span>
```

(of course <button>OK</button> would be better)

Widget Roles

```
<span role="button">OK</span>
```

(of course <button>OK</button> would be better)

```
<div role="alert">  
  <p>Something went wrong.</p>  
</div>
```

Widget Roles

```
<span role="button">OK</span>
```

(of course <button>OK</button> would be better)

```
<div role="alert">
  <p>Something went wrong.</p>
</div>
```

```
<div role="alertdialog">
  <p>Something went wrong.</p>
  
</div>
```

Widget Roles

alert
alertdialog
button
checkbox
combobox
dialog
gridcell
link
log

marquee
menuitem
menuitemcheckbox
menuitemradio
option
progressbar
radio
radiogroup
scrollbar

slider
spinbutton
status
tab
tabpanel
textbox
timer
tooltip
treeitem

Widget Container Roles

grid
listbox
menu

menubar
tablist
toolbar

tree
treegrid

Widget Properties

aria-activedescendant
aria-atomic
aria-autocomplete
aria-controls
aria-describedby
aria-dropeffect
aria-flowto
aria-haspopup
aria-label
aria-labelledby
aria-level
aria-live

aria-multiline
aria-multiselectable
aria-orientation
aria-owns
aria-posinset
aria-readonly
aria-relevant
aria-required
aria-setsize
aria-sort
aria-valuemax
aria-valuemin

Indicate what's going on



Widget States



(off)



(on)

Widget States



(off)



(on)

```
<button>  
  
```

```
</button>
```

```
<button>  
  
```

```
</button>
```

Widget States



(off)



(on)

```
<button>
  
</button>
```

```
<button>
  
</button>
```

Widget States



(off)

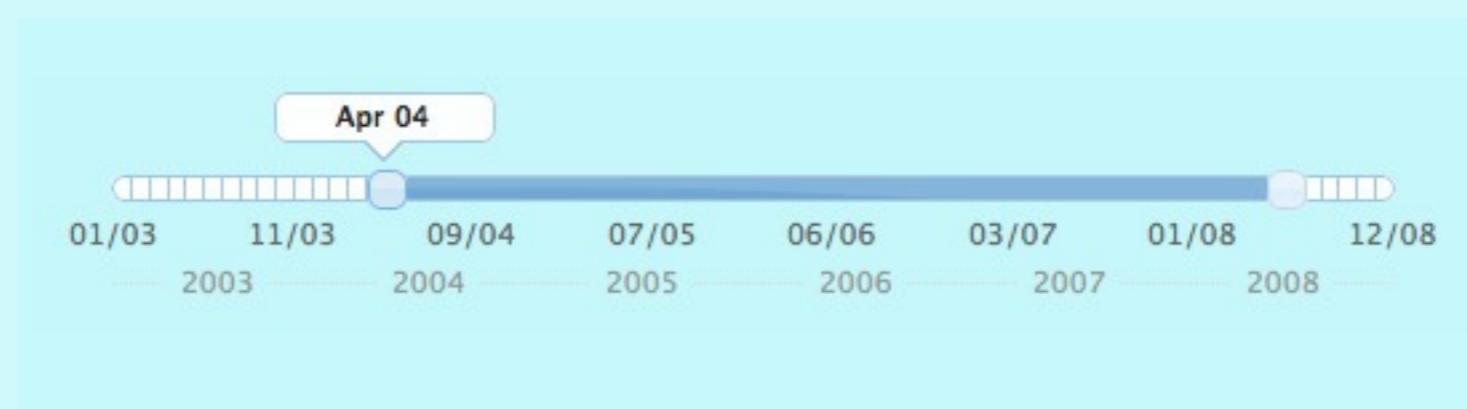


(on)

```
<button role="button" aria-pressed="false">  
    
</button>
```

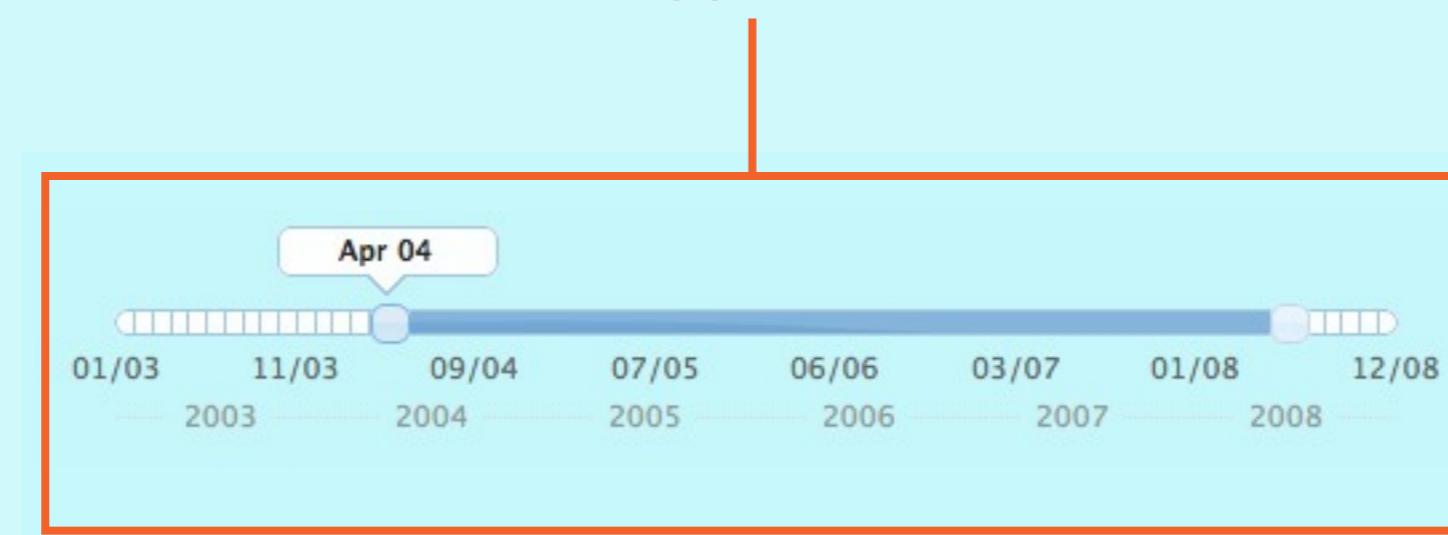
```
<button role="button" aria-pressed="true">  
    
</button>
```

Complex Widgets

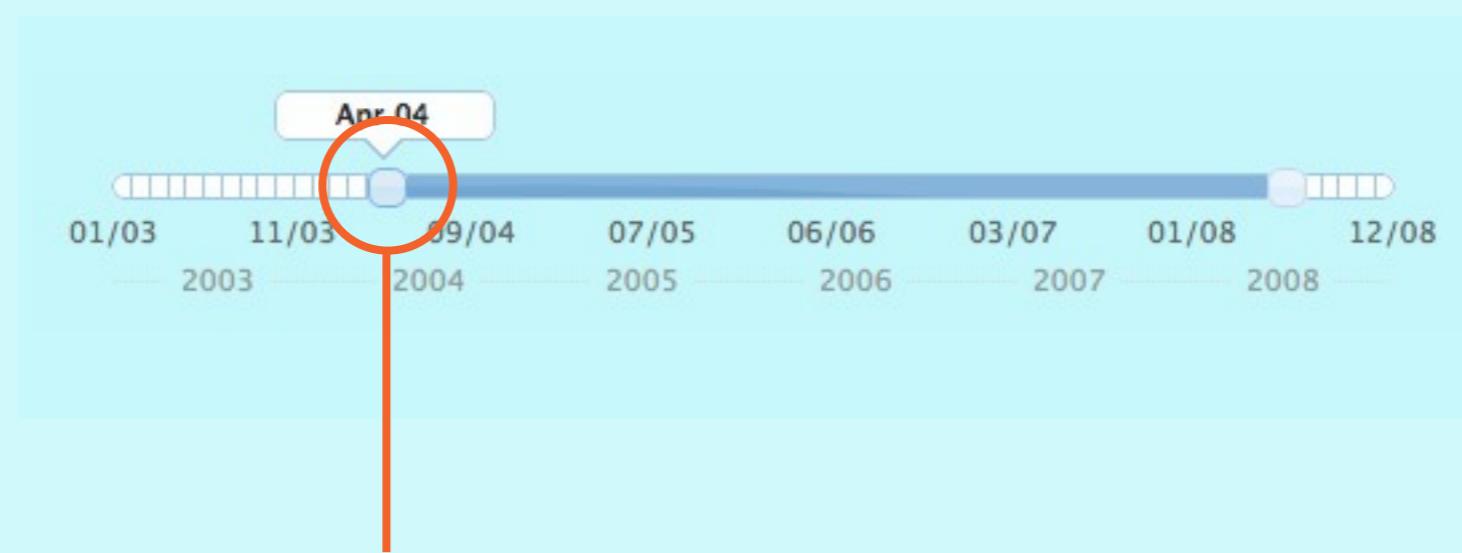


Complex Widgets

role="application"

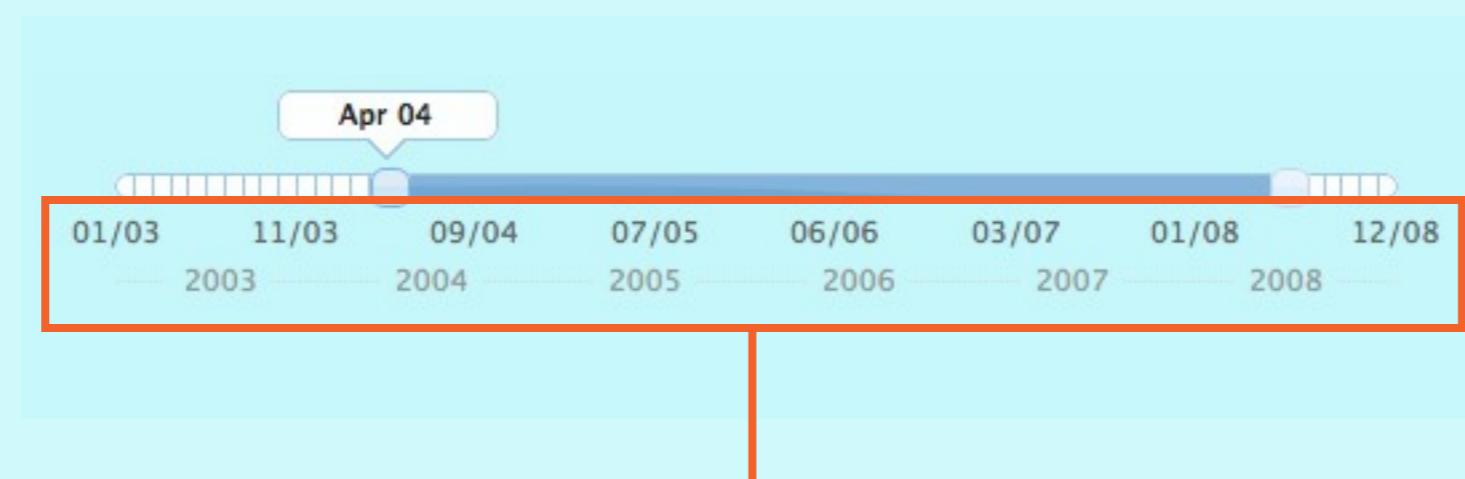


Complex Widgets



```
role="slider"
aria-labelledby="label_handle_valueA"
aria-valuemin="0"
aria-valuemax="71"
aria-valuenow="22"
aria-valuetext="Apr 04"
```

Complex Widgets



role="presentation"

Widget States

`aria-busy`

`aria-checked`

`aria-disabled`

`aria-expanded`

`aria-grabbed`

`aria-hidden`

`aria-invalid`

`aria-pressed`

`aria-selected`

`aria-valuenow` (the W3C defines this as a “property”)

`aria-valuetext` (ditto)



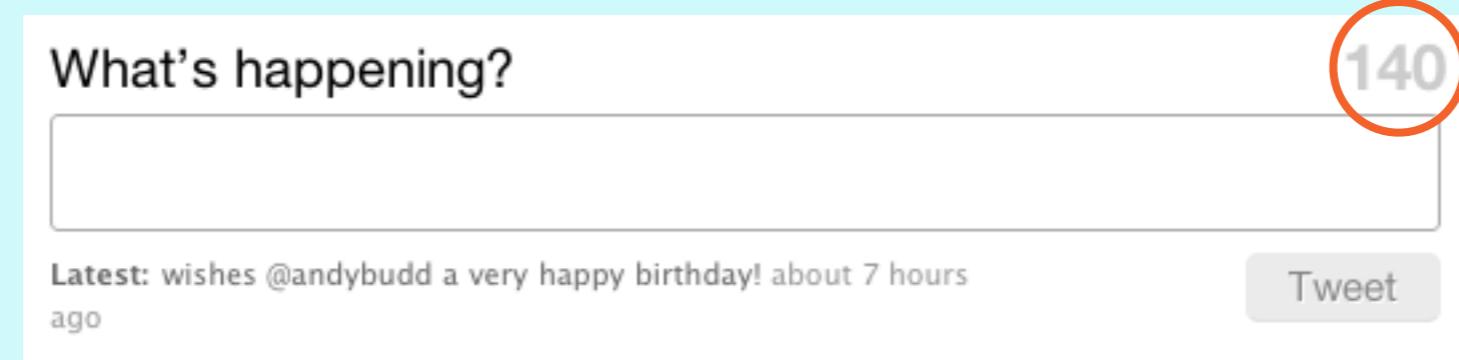
Highlight “living” content

Live Regions

What's happening? 140

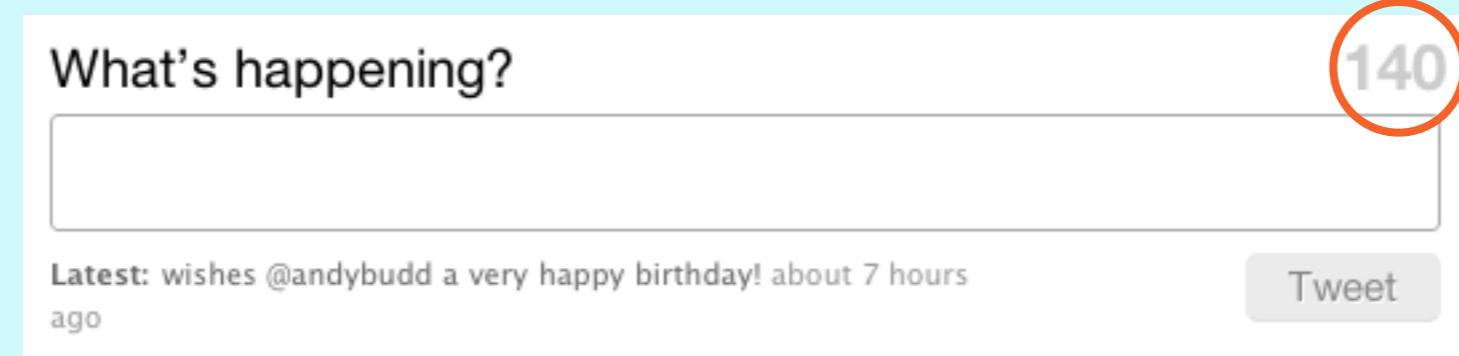
Latest: wishes @andybudd a very happy birthday! about 7 hours ago [Tweet](#)

Live Regions



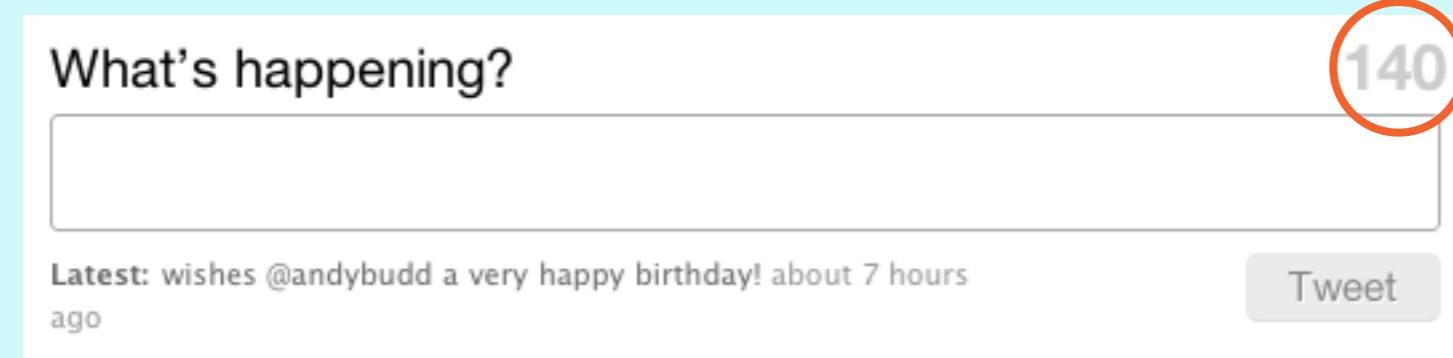
```
<span id="chars_left_notice" class="numeric">
  <strong id="status-field-char-counter"
    class="char-counter">140</strong>
</span>
```

Live Regions



```
<span id="chars_left_notice" class="numeric"  
      aria-live="polite">  
  <strong id="status-field-char-counter"  
        class="char-counter">140</strong>  
</span>
```

Live Regions



```
<span id="chars_left_notice" class="numeric"  
      aria-live="polite">  
  <strong id="status-field-char-counter"  
        class="char-counter">140</strong>  
  characters left  
</span>
```

Notification Options

off

change not announced

polite

change announced after user completes her current activity

assertive

user agent should interrupt the user's activity, but not immediately

Manage focus with slight-of-hand



tabindex helps manage focus

```
<div tabindex="0">  
  <p>This <code>div</code> can now receive focus  
using a keyboard's <kbd>tab</kbd> key. How cool  
is that?</p>  
</div>  
  
<div tabindex="-1">  
  <p>This <code>div</code> won't be focused by a  
user via the <kbd>tab</kbd> key, but JavaScript  
can <code>focus()</code> it. Nifty, huh?</p>  
</div>
```



Piecing it all together

Let's Build a Tabbed Interface

Pumpkin Pie

[OVERVIEW](#)[INGREDIENTS](#)[DIRECTIONS](#)[NUTRITION](#)

Whether you're hosting a festive party or a casual get-together with friends, our Pumpkin Pie will make entertaining easy!

Original recipe yield: 1 × 9-inch deep dish pie

Prep Time: 10min

Cook Time: 1hr

Ready In: 1hr 10min



Traditional approach

```
<h1>Pumpkin Pie</h1>
<div class="container">
  <div class="section">
    <h2>Overview</h2>
    
    <p>Whether you're hosting a festive party or a casual
       get-together with friends, our Pumpkin Pie will make
       entertaining easy!</p>
    ...
  </div>
  ...
<ul class="tabs">
  <li><a href="#">Overview</a></li>
  <li><a href="#">Ingredients</a></li>
  <li><a href="#">Directions</a></li>
  <li><a href="#">Nutrition</a></li>
</ul>
</div>
```

Static HTML with no style

Pumpkin Pie

Overview



Whether you're hosting a festive party or a casual get-together with friends, our Pumpkin Pie will make entertaining easy!

Original recipe yield

1 × 9-inch deep dish pie

Prep Time

10min

Cook Time

1hr

Ready In

1hr 10min

Ingredients

A little typography

Pumpkin Pie

OVERVIEW

Whether you're hosting a festive party or a casual get-together with friends, our Pumpkin Pie will make entertaining easy!

Original recipe yield: 1 × 9-inch deep dish pie

Prep Time: 10min

Cook Time: 1hr

Ready In: 1hr 10min



INGREDIENTS

- 1 (9in) unbaked deep dish pie crust
- ½ cup white sugar
- 1 tsp ground cinnamon
- ½ tsp salt
- ½ tsp ground ginger
- ¼ tsp ground cloves
- 2 eggs
- 1 can (15oz) pumpkin puree
- 1 can (12fl oz) evaporated milk

Typography and color

Pumpkin Pie

OVERVIEW

Whether you're hosting a festive party or a casual get-together with friends, our Pumpkin Pie will make entertaining easy!

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INGREDIENTS

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- 1 tsp ground cinnamon
- ½ tsp salt
- ½ tsp ground ginger
- ¼ tsp ground cloves
- 2 eggs
- 1 can (15oz) pumpkin puree
- 1 can (12fl oz) evaporated milk

Taking another look

Pumpkin Pie

Overview



Whether you're hosting a festive party or a casual get-together with friends, our Pumpkin Pie will make entertaining easy!

Original recipe yield

1 × 9-inch deep dish pie

Prep Time

10min

Cook Time

1hr

Ready In

1hr 10min

Ingredients

Taking another look

Pumpkin Pie

Overview



Whether you're hosting a festive party or a casual get-together with friends, our Pumpkin Pie will make entertaining easy!

Original recipe yield

1 x 9-inch deep dish pie

Prep Time

10min

Cook Time

1hr

Ready In

1hr 10min

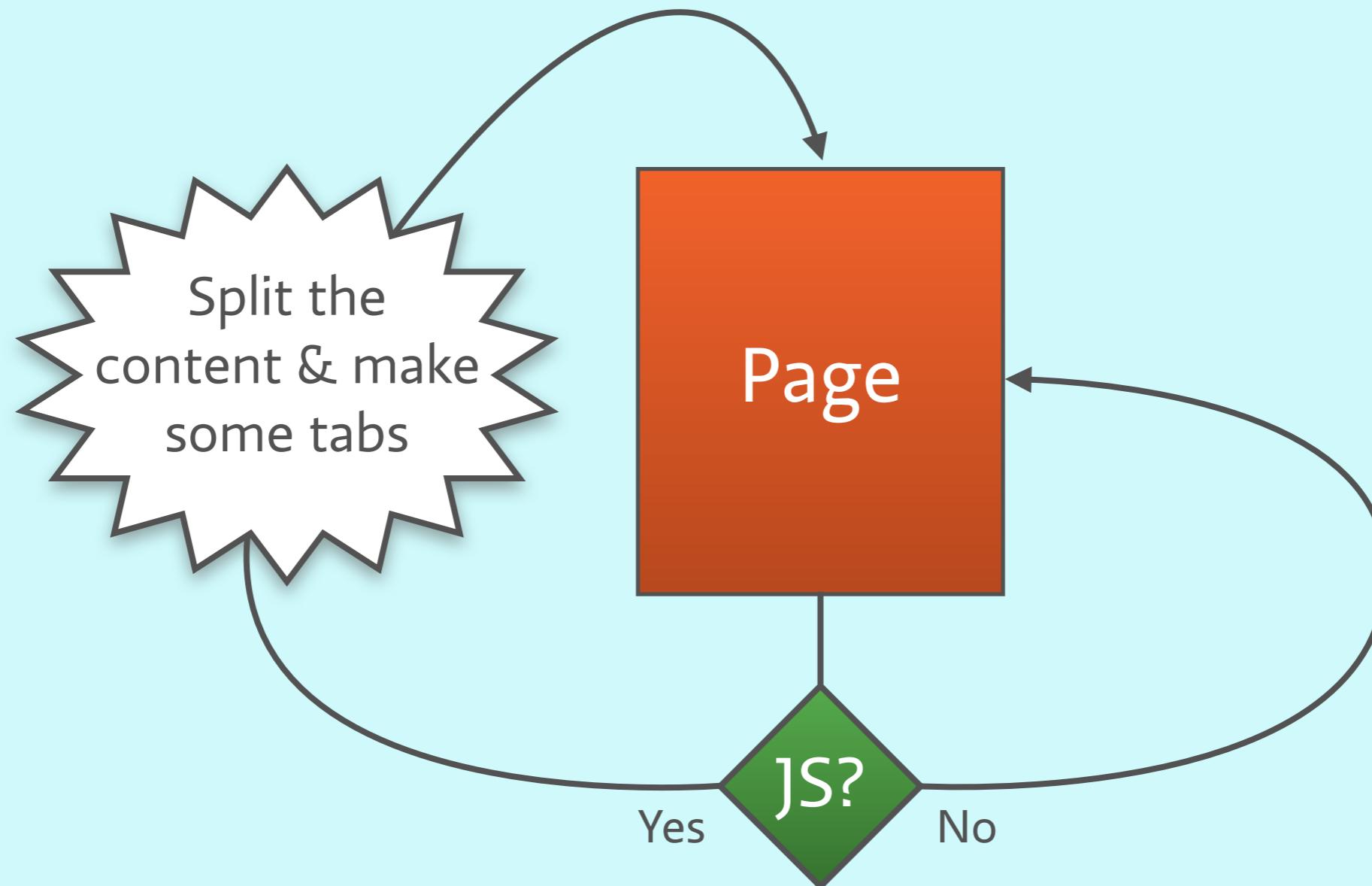
Ingredients

.tabbed

Required source

```
<h1>Pumpkin Pie</h1>
<div class="tabbed">
  <h2>Overview</h2>
  
  <p>Whether you're hosting a festive party or a casual
  get-together with friends, our Pumpkin Pie will make
  entertaining easy!</p>
  ...
  <h2>Ingredients</h2>
  <ul>
    <li>1 (9<abbr title="inch">in</abbr>) unbaked deep
        dish pie crust</li>
    <li>½ cup white sugar</li>
    ...
  </ul>
  <h2>Directions</h2>
  ...
</div>
```

Understanding the flow



Mouse-based interaction

Pumpkin Pie

OVERVIEW INGREDIENTS DIRECTIONS NUTRITION

Whether you're hosting a festive party or a casual get-together with friends, our Pumpkin Pie will make entertaining easy!

Original recipe yield: 1 × 9-inch deep dish pie

Prep Time: 10min
Cook Time: 1hr
Ready In: 1hr 10min



Photo by [Paul Goyette](#), licensed under [Creative Commons](#).

Assigning ARIA Roles

Pumpkin Pie

OVERVIEW INGREDIENTS DIRECTIONS NUTRITION

Whether you're hosting a festive party or a casual get-together with friends, our Pumpkin Pie will make entertaining easy!

Original recipe yield: 1 × 9-inch deep dish pie

Prep Time: 10min

Cook Time: 1hr

Ready In: 1hr 10min

A photograph of a single slice of pumpkin pie on a white plate. The pie has a golden-brown crust and a thick, orange-brown filling. It is topped with a dollop of white whipped cream.

role="application"
aria-activedescendant="folder-1"

Assigning ARIA Roles

role="tablist"

Pumpkin Pie

OVERVIEW INGREDIENTS DIRECTIONS NUTRITION

Whether you're hosting a festive party or a casual get-together with friends, our Pumpkin Pie will make entertaining easy!

Original recipe yield: 1 × 9-inch deep dish pie

Prep Time: 10min
Cook Time: 1hr
Ready In: 1hr 10min



Assigning ARIA Roles

role="tab"
aria-selected="true"
aria-controls="folder-1"

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Assigning ARIA Roles

`role="tab"
aria-selected="false"
aria-controls="folder-4"`

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role="tabpanel"
aria-hidden="false"
aria-labelledby="folder-1-tab"

Updating states and properties

```
tab.onclick    = swap;  
  
// ...  
  
function swap( e ){  
  // ...  
  old_tab.setAttribute( 'aria-selected', 'false' );  
  // ...  
  tab.setAttribute( 'aria-selected', 'true' );  
  // ...  
  old_folder.setAttribute( 'aria-hidden', 'true' );  
  // ...  
  new_folder.setAttribute( 'aria-hidden', 'false' );  
  // ...  
  _cabinet.setAttribute( 'aria-activedescendant', _active );  
}
```

Enabling the keyboard

```
tab.onclick = swap;  
tab.onkeydown = moveFocus;  
tab.onfocus = swap;
```

Enabling the keyboard

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Enabling the keyboard

tabindex="-1"

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Enabling the keyboard

tabindex="0"

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Enabling the keyboard

```
function moveFocus( e ) {  
  e = ( e ) ? e : event;  
  var tab  = e.target || e.srcElement,  
      key   = e.keyCode || e.charCode,  
      pass  = true;  
  tab  = getTab( tab );  
  
  // keyboard handling goes here  
  
  if ( ! pass )  
  {  
    return cancel( e );  
  }  
}
```

Enabling the keyboard

```
function getTab( tab )
{
  while ( tab.nodeName.toLowerCase() != 'li' )
  {
    tab = tab.parentNode;
  }
  return tab;
}
```

Enabling the keyboard

```
function moveFocus( e ) {  
    // ...  
    switch ( key ) {  
        case 37: // left arrow  
        case 38: // up arrow  
            move( tab, 'previous', false );  
            pass = false;  
            break;  
        // down (39), right (40), home (36), end (35)  
        // should be added here  
        case 27: // escape  
            tab.blur();  
            pass = false;  
            break;  
    }  
    // ...  
}
```

Enabling the keyboard

```
function move( tab, direction, complete ) {  
    if ( complete ) {  
        if ( direction == 'previous' ) {  
            tab.parentNode.childNodes[0].focus();  
        } else {  
            tab.parentNode  
                .childNodes[tab.parentNode  
                    .childNodes.length-1].focus();  
        }  
    } else {  
        var target = direction == 'previous' ? tab.previousSibling  
            : tab.nextSibling;  
        if ( target ) {  
            target.focus();  
        }  
    }  
}
```

Enabling the keyboard

```
function swap( e ){
  // ...
  old_tab.setAttribute( 'aria-selected', 'false' );
  old_tab.setAttribute( 'tabindex', '-1' );
  // ...
  tab.setAttribute( 'aria-selected', 'true' );
  tab.setAttribute( 'tabindex', '0' );
  // ...
  old_folder.setAttribute( 'aria-hidden', 'true' );
  old_folder.setAttribute( 'tabindex', '-1' );
  // ...
  new_folder.setAttribute( 'aria-hidden', 'false' );
  new_folder.setAttribute( 'tabindex', '0' );
  // ...
}
```

The Fruit (Pie) of Our Labor

Pumpkin Pie

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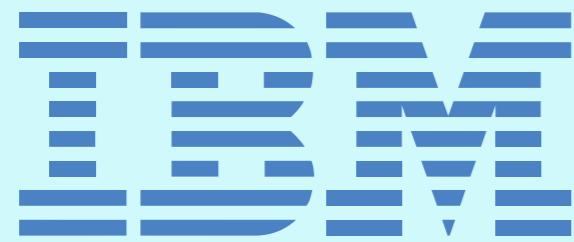
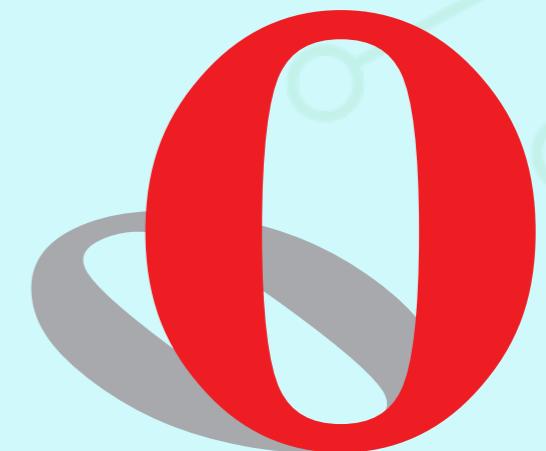
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Who is Supporting WAI-ARIA?

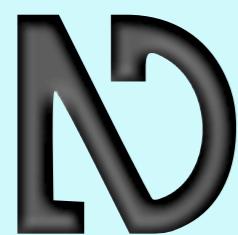


YAHOO!



Adobe

Google



dōjō



For More

WAI-ARIA Spec

w3.org/TR/wai-aria/

WAI-ARIA Support in Browsers

paciellogroup.com/blog/aria-tests/ARIA-SafariaOperaIEFF.html

TabInterface

easy-designs.github.com/tabinterface.js/

Progressive Enhancement with ARIA

Aaron Gustafson



easy designs

Slides available at
<http://slideshare.net/AaronGustafson>

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