Hell is other browsers - Sartre

Web standards and IE8

Peter-Paul Koch (ppk) http://twitter.com/**ppk** http://quirksmode.org MS Dev Days, 29 mei 2009

Event	IE 5.5	IE Ó	IE 7	IE8bı	FF 2	FF 3b5	Saf 3.0 Win	Saf 3.1 Win	Opera 9.26	Opera 9.5b	Konqueror 3.5.7
blur	yes			too many	almost	incom plete	almost	incomplete		incomplete	
When an element loses the focus.	 Firefox 2 fires too many events in a variety of circumstances. Firefox 3 fires too many events when blurring the window. 										
	 Safari and Opera don't support these events on links and/or form fields in all circumstances. 										
	Konqueror doesn't support these events on the browser window.										
change	buggy				yes		yes		yes		yes
When a form field value changes.	• IE has a serious bug in its handling of this event on checkboxes and radios.										
click	yes				yes		yes		yes		yes
When a mousedown and mouseup event occur on the same element OR an element is activated by the keyboard.											
Event	IE 5.5	IE 6	IE 7	IE8b1	FF 2	FF 3b5	Saf 3.0 Win	Saf 3.1 Win	Opera 9.26	Opera 9.5b	Konqueror 3.5.7
contextmenu		yes		minimal	yes	buggy	y	es	n	0	no
When the user right-clicks to get the context menu.	Preventing the default (i.e. preventing the context menu from appearing) is the whole point of this event.										

Event	IE 5.5	IE 6	IE 7	IE8b1	FF 2	FF 3b5	Saf 3.0 Win	Saf 3.1 Win	Opera 9.26	Opera 9.5b	Konqueror 3.5.7
	yes				too many		incom plete		incom	plete	incomplete
When an element loses the focus.	• Firefox 2 fires too many events in a variety of circumstances.										
	• Firefox 3 fires too many events when blurring the window.										
	Safari and Opera don't support these events on links and/or form fields in all circumstances.										
	Konqueror doesn't support these events on the browser window.										
											_
					y (es	У E	∋s	y e	∋s	yes
When a form field value changes.											
h++n.	/ /	has a s	erious	bu its	ha dling	of this ev	ent on ch	eckboxes	ind radio	os.	no
IIIID./		Q		,,,	K	SI.			IE	.0	IS
When a mousedown and mouseup event occur on the same element OR an element is activated by the keyboard.											
Event	IE 5.5	IE 6	IE 7	IE8b1	FF 2	FF 3b5	Saf 3.0 Win	Saf 3.1 Win	Opera 9.26	Opera 9.5b	Konqueror 3.5.7
	yes		minimal	yes	buggy			no		no	
When the user right-clicks to get	Ducas	+in = +1	- J-£	14 (1	orroutin	the end				h a sub a la	int - fthin

Preventing the default (i.e. preventing the context menu from appearing) is the whole event.

W3C specifications for the three Web languages:

HTML (structure; what does it mean?)
CSS (presentation; how does it look?)
JavaScript (behaviour; what does it do?)

<h1>Hello, ppk</h1>

HTML says: this is a page header (doesn't really have a meaning)

<h1>Hello, ppk</h1>

We want the text to be red (CSS)

and we want the user name to appear when the user mouses over the header (JavaScript)

<h1

style="color: red" onmouseover="appear()">Hello, ppk</h1>

style="color: red

<h1

onmouseover="appear()">Hello, ppk</h1>

This is the wrong way to apply CSS and JavaScript.

style="color: red

<h1

onmouseover="appear()">Hello, ppk</h1>

If we need a similar header on another page we have to copy all this code.

"ool

A 1 1 1

<h1

onmouseover="appear()">Hello, ppk</h1>

and if we want to change the colour to blue, we have to go through all pages in the site and change it.

<h1>Hello, ppk</h1>

Instead we use separation of

concerns:

Separate files for our HTML, CSS, and JavaScript.

<h1>Hello, ppk</h1>

color: red

CSS:

h1

Ease of maintenance 1: Change the colour

<h1>Hello, ppk</h1>

color: red blue;

CSS:

h1

<h1>Hello, ppk</h1>

JavaScript: \$('h1').onmouseover = appear;

Ease of maintenance 2: It's useful to add a focus event to every mouseover event.

<h1>Hello, ppk</h1>

\$('h1').onmouseover

= appear;

<h1>Hello, ppk</h1>

\$('h1').onmouseover = \$('h1').onfocus = appear;

Change one file, apply throughout your site.

Hooks

JavaScript

HTML



CSS

- id

JavaScript

document.getElementById('special'). onmouseover = appear;

HTML

CSS

- id

var el = document.getElementById('special');
if (el) {
 el.onmouseover = appear;

JavaScript

"Is this element available?"

CSS

- id - class

.class getElementsByClassName(); or a library function

JavaScript

CSS

- id - class

JavaScript

var els =
document.getElementsByClassName('special')
if (els.length) {
 // go through all elements and do something
}

CSS

- id - class

Use the same hook for presentation and behavior; for CSS and JavaScript.

JavaScript

HTML

JavaScript

Now what would this be?

Surprise: it's a dropdown menu

JavaScript

The class is a hook for both layers.

ol.dropdown {
 // presentation layer
} HTT

JavaScript

The class is a hook for both layers.

var dropdowns = \$('dropdown');
if (dropdowns.length) {
 // initialize behavior layer



Some common myths about JavaScript

Nonsense!

THIS MACHINE HAS NO BRAIN USE YOUR OWN

- Primitive cell phones don't support it (sufficiently)
- Speech browsers' support may be spotty
- Company networks may filter out <script> tags

Make sure that the content and navigation of the site can be used without JavaScript.

THIS MACHINE HAS NO BRAIN USE YOUR OWN

Make sure that the content and navigation of the site can be used without JavaScript.

The page will remain accessible in all circumstances.

Make sure that the content and navigation of the site can be used without JavaScript.

You can use JavaScript for nice extras, though.

However...

Without JavaScript the page will become less user-friendly. Can't be helped.

However...

Without JavaScript the page will become less user-friendly. After all, the purpose of JavaScript is to add interactivity to a page.

Everybody uses a mouse

Nonsense!
Device independence

Take a dropdown menu:

```
var dropdown = \{
  setEventHandlers: function (obj) {
    obj.onmouseover = this.over;
    obj.onmouseout = this.out;
  over: function () {
    // code
  ζ,
    etc
```

It doesn't work without a mouse.

var dropdown = {
 setEventHandlers: function (obj) {
 obj.onmouseover = this.over;
 obj.onmouseout = this.out;

over: function () {
// code

},

etc

var dropdown = { We need evens that are fired when the user "enters" or "leaves" a link by using the keyboard.

focus and blur

' etc

rent function

var dropdown = { setEventHandlers: function (obj) { obj.onmouseover = obj.onfocus = this.over; obj.onmouseout = obj.onblur = this.out;

over: function () < // code

}, // etc

Restriction: the object must be able to gain the keyboard focus. object of the second of the object of the object

etc

Restriction: the object must be able to gain the keyboard focus. biomouseer = objectus = this.over;

- obj.onmouseout = obj.onblur = this.ove - links
- form fields

etc

- elements with tabindex

And what about click?

We're in luck: the click event fires also when the user activates an element by the keyboard.

click should be called activate.

Want to know more about web development techniques?



fronteers.nl

The organisation of web developers in Holland. (I'm chairman)

		/ Gus. overflow-
	wadding: Or	200 0
	und white	
	in the second second	Int
in the second	er) intra reist	
tent: 2em/2	day sans sarif color	
in a case of the second s	0.0 100em 3em: 3 /5 coutbills	
w */ /* too line of fac	a (scalp): fixed positioning and	1.00
an Ortoor Semi left 11	em width: 140%; max width: dem	in.
max-height, see 10.7 */	background: black: border-bottom	
and the visible at all the HTM	I parsing "+" combinator stacking ou	
the because the "n + table + n" n	ule helow should match it too, thus his	
in ouldn't match anything 1/ mid-	the + p { margin-top: 3em: /	
and thus not be visible */)	attribute selectors, for	at the
Transis, 36ex 0.0.60m	lack Zem: booleristyle	T PRIVIL
internetiest) [classesecon]	"I & fleat: right: width	10 20 10 10 10
0: Y /* only content	line of face: width an	d ment
the could black tem: border most spon or	new unrest concounds red unifidates in	nacero
AAACOdiPeAAAADEEOVR42mP4%2	58BAAT% 2FAP9IoNErAAAAAEIFTkSuOr	HCC1 21
12em: line-height: 1em: 3 /* class se	lectors headache */ two error two { h	actionen
shead (background; red;) /* shouldn't	match */ [class=second two] { backo	round the
grammar says it only accepts IDENTs or S	TRINGs) */ /* fourth and fifth lines of	
d backgrounds */ /* the two images are ldr	entical: 2-by-2 squares with the too lof	
a set to transparent. Since they are		
cone, thus creating a solid vellow bio-		
eves-a (height: 0: line-height: 2em; b.		
Jolay: inline: vertical-align: bottom:) #	ith: 7.Sem: height: 2.	
rould fallback to being inline (height/width in-	/ #eves-a object obje	
12px 0 11px: background: unifdata: image/page	RWOKGgoAAAANSUhEUgA	
AAAABupgeRAAAAF mJLR0OA%2FwD%2FAP%2Bgva	TAAAAEUIEOVR42mP4%2F588Cv7%	
fixed tox 0:) Fey the filest; left; width: 10em; he	eight: 2em; background: fixed unif data	
199 BAAAAIAA AA AA D91JozAKSMAILLIW9LER	AHKABupgeRAAAABmJLR0OA%2FwD	
27%2FZwAAHIA UwPJ4AAAAASUVORKSCYII%	3D); border-left; solid 1em black	
in middle laver i it a float */ #eves-c { dis	play: block: background: red: http://	
/* should most because it is a bi	ock */ /* lines six to nine, with	
isin; borde	in-height: 80%; height: 60	
2) and in San Berry so 3	em wins */ padding *	
und: ye	alaht Sam	
se divch		
: border-example soll		
hck; border-style; solid		
times mannin a		

IE6 padding: 0: overflow und: white or: blue: } .: iont: 2em/24ox sans-serif: margin: 0.0.100em 3em; Released October 2001 - Decent CSS - Excellent JavaScript AAJAA AA! This allowed Microsoft to win the browser war.

IE 6

Unfortunately, Microsoft disbanded the IE team after the war had been

... font: 2em/24ox sans-serif: color.

.; padding: 0: overflow

-und: white

unt: inhad?

won.

AAACQd1PeAAAADELEQVR42mP4%2F58BAAT%2FAf9jgNErAAAAAELFTkSuQmCC) 12em; line-height: 1em;) /* class selectors headache */ .two.error.two { background: shead { background: red;) /* shouldn't match */ [class=second two] { background: grammar says it only accepts IDENTs or STRINGs) */ /* fourth and fifth lines of face, w d backgrounds */ /* the two images are identical: 2-by-2 squares with the top left and b a set to transparent. Since they are identical: 2-by-2 squares with the top left and b

.cone, thus creating a solid yellow bioreves-a { height: 0; line-height: 2em; 1 play: inline; vertical-align: bottom; } ##

d black 1em: borde

It assumed it would never have to

create another browser.

The browser market back then



IE 6... cadding: 0: overflow or: blue; } .intro :vis iont: 2em/24ox sans-serif: color 0.0.100em Meanwhile, competition on the browser market has returned. d black 1em: bords AAACOd1PeAAAADE 12em: line-height: 1e class selectors headache background: grammar says it only a - Mozilla -> Firefox - Safari (Apple) - Opera - more recently Google Chrome

The current browser market



Field States of the second sec

a backgrounds */ /* the two images at a set to transparent. Since they are (is one, thus creating a solid yellow block aver-a / height: 0: line-height: Zero, b

play: inline; vertical-align: bottom; } #

Web developers started to get fed up

District Comparison and Compariso

tan: maroin

with IE6.

o set to transparent. Since they are income, thus creating a solid yellow block eyes-a { height: 0; line-height: 2em; b

Nonetheless, they are a few years

behind the competition now.

IE 6

Released Octoberts the "p + table + p" ref. below should match it too, thus h

cone, thus creating a solid yellow b

iouldn't match anything */ + p { margin-top: 3em; nd thus not be visible "/ attribute selectors, floa 1: margin: 36px 0 0 60; -=first] [class=secon 0; } /* only content ne of face: width and on d black 1em; borden AAACOd1PeAAAADEIE0 mP4%2F58BAAT%2FAf9taNErAAAAAEIFTkSuOmC 12em; line-height: 1em shead { background: red; grammar says it only accepts d backgrounds "/ /" the two ima o set to transparent. Since they ar

olor: blue; } .intro :visl

v; padding: 0: overflow

und: white

unit: inherit

eyes-a { height: 0; line-height: 2em; play: inline; vertical-align: bottom; } # th: 7.5em; height: rould fallback to being inline (height/width 12px 0 11px; background: uni[data: image/pr AAABupgeRAAAAAP. LR0QA%2FwD%2FAP%2BgvacT EUIEOVR42mP4%2F588Cv7 rd 1px 0; } #ey left; width: 10em; height: 2em; background: fixed urlid AAJAA AA! D913pzAKSMAILLIW9LERAHKABupgeRAAAABmJLR0QA%2F FZWAAHfA (AAAAASUVORK5CYII%3D); border-left: solid 1em bla the layer l float */ #eves-c { display: block; background: red; most because it is a block */ /* lines six to nine, will border-top: 0; min-height: 80%; height: 6 m; borde) and in und: ye se divth : border-bass tion would soll hck; border-style; soll-

IE 7 a: padding: 0: overflow padding: P und: white unt: inhari' ion: blue: } .intro :vis .: font: 2em/24ox sans-serif: color uparent; margin; 0.0.100em 3em; 3 /* con Released October 2006 Five years between 6 and 7. That's the root cause of the current problems EUIEOVR42mP45 em; height: Zem; background: fixed W9LERAHKABupgeRAAAABmJLRO (ORK5CYII%3D); border-left: solid 1em #eves-c { display: block: background: ecause it is a block */ /* lines six to nine n: borde border-top: 0; min-height: 80%; height: and in und: ye se divth : border-bas 110 00110 200 hck; border-style; soli

IE 7 padding: 0: overflow or: blue: } .intro 2em/24ox sans-serif: color rain: 0 0 100em 3em; } /* cou Web developers were moderately enthousiastic 12em; line-height; 1e IE7 solved many IE6 problems but not all of them. eves-c { display: block; -too: 0: min-height: 80%; The real gain was that IE was being improved again.

IE 7 Corporate clients of Microsoft were less enthousiastic. Many Intranet applications are written for IE6 only and don't work in IE7. (The error was creating these apps for only one browser.)

or didn't upgrade at all.

This is the backward compatibility and in the backward compatibility and the backward compatibility an

IE 6 -> 7 adoption

Thus, IE 6 users were relatively sluggish in picking up IE7

12em: line-height: 1e

reason

font: 2em/24ox sans-serif: color

partly for backward compatibility

class selectors headache

partly because many IT departments are slow in rolling out new software

display: block;

/" lines six in

left; width: 10em; height: 2em; background: lozAKSMAILLIW9LERAHKABupgeRAAAABm)L

IE 6 -> 7 adoption



IE 7 So for the future, the LE team had to - increase standard compliance - remain backward compatible The problem is: these two goals are incompatible.

padding: 0: overflow ore Nuter 3 2em/24ox sans-serif: margin: 0.0.100em 3em: Released March 2009 Standard compliance has been improved dramatically. (full CSS 2) It is also backward compatible with IE7.

$\mathbf{HE8}$ The compatibility mode switch Web authors can declare whether they want their sites to be shown in the new IE8 mode or the old IE7 mode. (IE6 mode is not available.)

||E||8v; padding; 0: overflow und: white unt: inherit clion: blue; } .intro :visi .; font: 2em/24px sans-serif; color uparent; margin: 0 0 100em 3em; } /* con The compatibility mode switch match anything not be visible "/ margin: 36px 0 0 60 -= first] [class=seco /" only conter lack 1em: bords <meta OdiPeAAAADE line-height: 1e class selectors headache background grammar says it only http-equiv="X-UA-Compatible" content="IE=8" SMAILLIW9LERAHKAH aalaa aa ZMAAHIA SUVORK5CYII%3D); border-left: le laver #eves-c { display: block: background should is a block "/ /" lines six to nin m; borde conder-top: 0; min-height: 80%; height:) and in und: ye se divch : border-bass ing billion and hck; border-style; soll







uparent; margin; 0.0.100em 3em; } /* con Thus, web developers can use the enhanced standard compliance of

over: blue; } .intro :visi .; iont: 2em/24px sans-serif; color. . padding: 0: overflow

padding: 01

-und: white

unt: inherit

d black 1em: bords AAACOdsPeAAAADF mP4%2F58BAAT%2FAP96NErAAAAAEI 12em: line-height: 1er shouldn't match "/ [class=second two] shead { background: red grammar says it only d backgrounds "/ /" transparent. Since

us creating a solid vellow I height: 0: line-height: Zem; play: inline; vertical-align: bottom;

or opt to keep their site frozen in IE7 mode.

IE8

#eves-c { display: block; background is a block */ /* lines six to nit rder-top: 0; min-height: 80%; height

the send soli border-a.p. hck; border-style: soll

and in und: ye se divsh

IE 7 -> 8 adoption

With the backward compatibility problem partly solved, IE 8 will be adopted a bit faster than IE 7

or: blue: } .intra em/24ox sans-serif:

but it will gain market share from IE 7, and not from IE 6.

IE 7 -> 8 adoption



IE6 IE7 IE8

- 2006 2007 2008 2009

The IE landscape

Thus, web developers will have to cater to IE6, IE7, and IE8

or: blue; } .intro :vis bem/24ox sans-serif:

and the first one to disappear will be

IEG7, Source of the sector of

The IE landscape

However, optimising a normal website for IE6 costs about 20% to 30% extra time (and money).

I expect that web developers are actually going to charge this money,

and that some clients will decide not to bother with IE6.
The IE landscape Thus, IE6 will degrade to an Intranet browser for companies that haven't upgraded their Intranet in years while the companies' employees will use another browser for their daily surfing.

The IE landscape

And that otherwise the "p + table + p" rife below should match it too, thus hid to be attribute selectors, float per table width of the selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margin-top: 3em; 7 should be attribute selectors, float per table + p { margi

ion: blue: } .intro

eves-c { display: block; backgroup

version next to another

(well, you can, but the average sysadmin won't like it)

IE 9?

I assume the IE team will continue to work on their browser, and I assume a future IE 9 will support still more CSS and

.; padding: 0; overflow

padding: Pr

white

unt: inher?

.; font: 2em/24ox sans-serif: color

Javas old (* back to being inline (height/width // #eyes-a objection of the second of

IE 9? .; padding: 0; overflow ion: blue: } .intro :vis .: font: 2em/24ox sans-serif: color uparent: margin: 0.0.100em 3em: 3 /* The compatibility switch will also remain available. d black 1em; borde AAACOd1PeAAAADFI 12em; line-height; 1er shead (background If you've locked your site in IE 8 mode, IE 9 will execute it in IE 8 mode, too. { display: block; background: n /" lines six to nin min-height: 80%; height in spind so Border-bash hck: border-style: soll

IE 9? .; padding: 0: overflow. -und: white unt: inhari' or: blue: } .intro :vis .; jont: 2em/24ox sans-serif: color. uparent: margin: 0.0.100em 3em: 3 /* cou The compatibility switch will also remain available. d black 1em; borde AAACOdSPeAAAADF 12em; line-height; 1er Background If you do not use the switch at all, IE 9 will execute your site in IE 9 mode. #eves-c { display: block; background: because it is a block */ /* lines six to nin shouln: borde border-top: 0; min-height: 80%; height: and in und: ye se divth interport sol : border-s.s. hck; border-style; soll

IE 9? padding: 0: overflow padding: P white unt: inhad? sor: blue; } .intro :visi .; jont: 2em/24ox sans-serif: color. aparent; margin: 0 0 100em 3em; } /* con IE will continue to become better. match anything ", 36px 0 0 60 The only question is whether they'll overtake the other browsers. av: inline: vertical-align: bottom; } fallback to bei 2px 0 11px: back und: unifdata: image/pa

BubbeRAAAAF 62FwD%2FAP%2Bqvac1 EUIEQVR42mP43 12 O: 1 Sev left; width: 10em; height: 2em; background: fixed u LipzAKSMAILLIW9LERAHKABupgeRAAAAABmJLR00. AAAAASUVORKSCYII%3D); border-left: solid 1em 1 le laver */ #eves-c { display: block: background: rebecause it is a block */ /* lines six to nine should m; borde border-top: 0; min-height: 80%; height: 1) and in und: ye se divth the send soli : border-a.p. hck; border-style; soll

Event	IE 5.5	IE Ó	IE 7	IE8b1	FF 2	FF 3b5	Saf 3.0 Win	Saf 3.1 Win	Opera 9.26	Opera 9.5b	Konqueror 3.5.7
	blur yes				too many		incom plete almost		incomplete		incomplete
When an element loses the focus.	• Firefox 2 fires too many events in a variety of circumstances.										
	 Firefox 3 fires too many events when blurring the window. Safari and Opera don't support these events on links and/or form fields in all circumstances. Konqueror doesn't support these events on the browser window. 										
When a form field value changes.											
quirksm		le		rg	/c(om	pa	tib		tv.	html
click				0/	у	es	ye	es	уe	\$	yes
When a mousedown and mouseup event occur on the same element OR an element is activated by the keyboard.											
Event	IE 5.5	IE 6	IE 7	IE8b1	FF 2	FF 3b5	Saf 3.0 Win	Saf 3.1 Win	Opera 9.26	Opera 9.5b	Konqueror 3.5.7
				minimal	yes	buggy	ye	es	n	o	no
When the user right-clicks to get the context menu	Preventing the default (i.e. preventing the context menu from appearing) is the whole point of this										

event.



When the user right-clicks to get the context menu.

Preventing the default (i.e. preventing the context menu from appearing) is the whole point of this event.