

# The State of (Corporate) HTML5

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# 314 days remaining



## in this session...

- Understand the pace of change on the web
- Techniques to “future proof” your web application
- Take advantage of the latest, while not breaking the oldest

# the web has evolved

The screenshot shows the MSN homepage with a blue header and navigation bar. The main content area is divided into several sections, including a search bar, a 'Today on MSN' section with a list of links, a 'Family Matters' section, a 'Your Money' section, and a 'Halloween greetings' section. A sidebar on the right lists various 'MSN Channels' such as Autos, Business, Careers, City Guides, Entertainment, Family, Games, Halloween, Health, Hotel & Travel, House & Home, Kids, Learning & Research, Love & Relationships, News, Slate Magazine, Sports by ESPN, World Series, Tech & Gadgets, and Women. A 'My MSN' section at the bottom right offers personalized content like Hotmail, stock quotes, and local weather. A 'Spotlight' section features a 'Sick of spam?' article. A 'Featured Today' section is also visible at the bottom.

Help

msn

MSN Home My MSN Sign In

Sunday, Oct 27

MSN Home | My MSN | Hotmail | Search | Shopping | Money | People & Chat

Search the Web:  Search

It's better with the Butterfly: Why MSN 8 is cool

Is antibacterial soap any better than regular?

Job interview cheat

Today on MSN

- NFL scores & recaps
- High-protein diets: bad?
- Top 5 dating myths
- Trendy US shoe stores

Family Matters

- Are kids more tired?
- How to pay for your family's next car
- Get Harry Potter 2 tix
- Moving? Do it for less

Halloween greetings

Check out 13 spook-tacular & inviting e-cards

MSN Channels

- Autos
- Business
- Careers
- City Guides
- Entertainment
- Movies, Music, TV
- Family
- Games
- Halloween
- Health
- Hotel & Travel
- House & Home
- Kids
- Learning & Research
- Love & Relationships
- News
- Slate Magazine
- Sports by ESPN
- World Series
- Tech & Gadgets
- Women

My MSN

Visit My MSN to get your Hotmail, stock quotes, local weather and more!

Go to My MSN

Spotlight

Sick of spam? Try MSN 8's new filter

Featured Today

Old Friends

Personals

Weather

White Pages

Yellow Pages

More...

Shop

Auctions

Business Cards

Buy Books

Buy Music

DVDs \$9.99 VHS \$2.99

Fall Flowers

Send Money

Used Car Deals

More...

Why Washington Needed Paul Wellstone

ESPN Sports

- Angel rally forces Series Game 7
- Mets' leaks anger commissioner
- Notre Dame perfection intact

CNBC on MSN Money

Find a Broker

Ameritrade | TD Waterhouse | ShareBuilder | Trade Now

Name	Last	Change	% Chg
Dow	8,443.99	▲ +126.65	+1.52%
S&P	897.65	▲ +15.15	+1.72%
NASDAQ	1,331.13	▲ +32.42	+2.50%

- Static content
- Server generated
- Minimal interaction
- Limited design choices

# the web has evolved

- Functional
- Overwhelming
- Training required
- Bland design
- Fails to embrace the web

**TELEHEALTH SERVICE MANAGER**

Request Registry Reporting Admin

Search > Create > Clinical Admin Educational

Header Sites Approval Consultification Patient Verification

**Request Summary**

Request ID	83112	Service	Cardiology
Status	Requested	Session(Studios)	Pol
Patient	Joe Doe1043772415346	Gateway?	No
Consultant	-	Bridge?	No
Date Scheduled	-	Purpose	Fol
Requestor	fabien tiburce	Approved?	Calendar
		Date Request	

**Header**

Requestor \* fabien tiburce

Source \* Fax

Number of Studios \* 2 actual and virtual(s)

Received Date \* 14-04-2003 dd-mm-yyyy

Requested Date \* 24-04-2003 dd-mm-yyyy 0800 24 hou

Priority Code \* Elective

Purpose \* Follow-up

Patient \* Joe Doe1043772415346

Consultant \* Service \* Cardiology

**Incident Details**

Incident Number: IM10063

Incident Title: CPU Queue Length is 20, crossed warning (1

Alert Status: open

Category: Shared Infrastructure

Subcategory: Enterprise

Product Type: Applications

Problem Type: None

Manufacturers: Unknown

Class:

Contact Time:

Service Contract:

Company: ACME

Contact: BUTLER, RICHARD

Incident Description: Reported Via Self Service

Incident created by EM Service Center Connector.

EM User: SYSMAN

Alert Information:

Target Type: Host

Target Name: netbpl-vm002.netbpl.local

Metric Columns: CPU Queue Length

**Calendar**

2003

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Mo Tu We Th Fr Sa Su

1 2 3 4 5 6

7 8 9 10 11 12 13

14 15 16 17 18 19 20

21 22 23 24 25 26 27

28 29 30

**Table**

From Date	To Date	From Value	To Value	Policy Name	Policy ID
17/04/2003	17/04/2003	100000	100000	Policy_Coverage	100

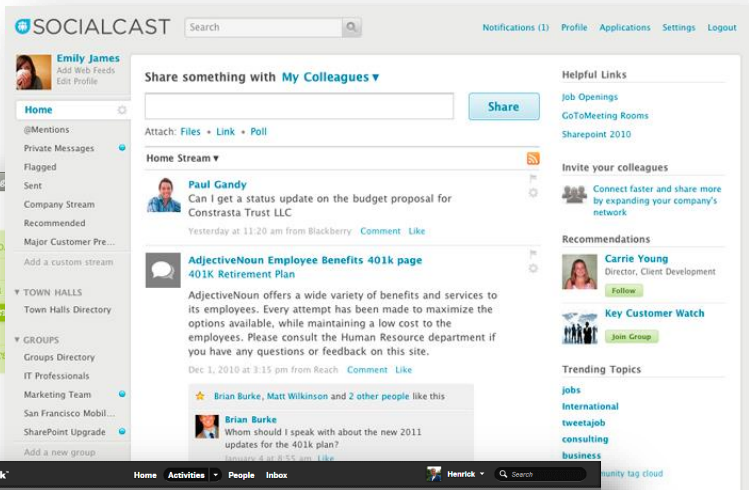
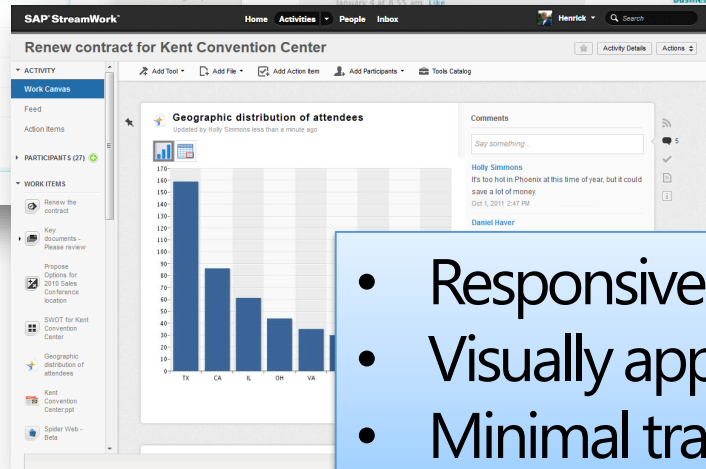
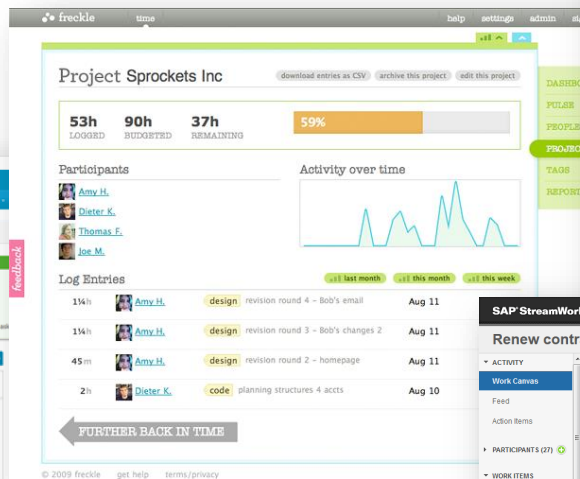
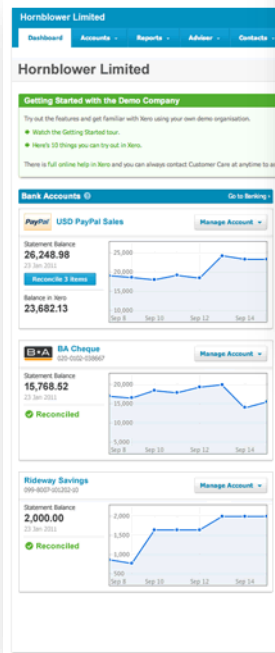
**Table**

Date	Created By	Date Approved	Approved By	Policy Name
16 Nov 2003	System E-Share			PP0100_20007000002

**Table**

Period	In Network	Out of Network
2001	943,300	943,300
2002	943,300	943,300
2003	943,300	943,300
2004	943,300	943,300
2005	943,300	943,300
2006	943,300	943,300
2007	943,300	943,300
2008	943,300	943,300
2009	943,300	943,300
2010	943,300	943,300

# the web has evolved

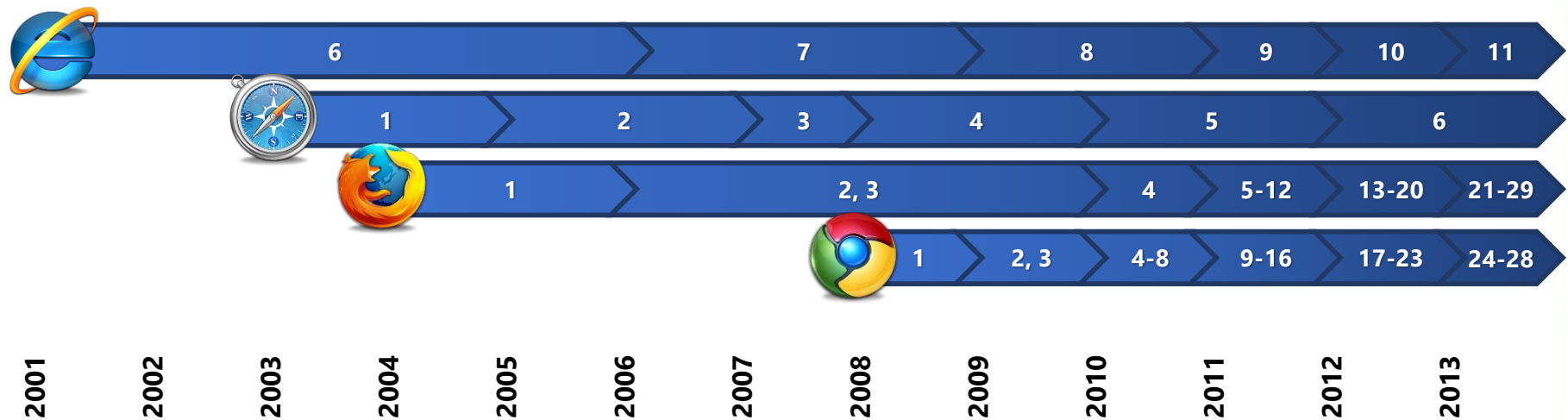


- Responsive interfaces
- Visually appealing
- Minimal training



# we're pushing to maximum warp!

- The real browser race has just begun
- Even IE is moving toward automatic updates (if sysadmins allow it)



# no one will win though...

- Device-specific browser lock out prevents one browser from ruling them all
  - iOS = Safari
  - Windows RT = IE
  - Android = Chrome (Android Browser)
- Chrome's recent departure from WebKit no longer makes it the holy grail of web development
  - Not that all Web Kit browsers were created equal anyways...
- The success of the web is brought about by the diversity, not a drive towards monoculture



# competition is good thing



- Promotes innovation
- Exposes weakness
- Applies learning from failure

# if we could say the web was “n-1”...

- Business might rethink how the invest in web applications
- Greater pressure by developers on vendors for standards adoption and compliance
- Automated smoke tests would be much more important

## Current Active Support

	Internet Explorer	Chrome	Firefox	Safari	Opera
jQuery 1.x	6+	Current – 1 version	Current – 1 version	Current – 1 version	Current – 1 version
jQuery 2.x	9+				

## YUI Target Environments

[User Guides](#) [Examples](#) [API Docs](#) [Environments](#) [Tutorials](#)

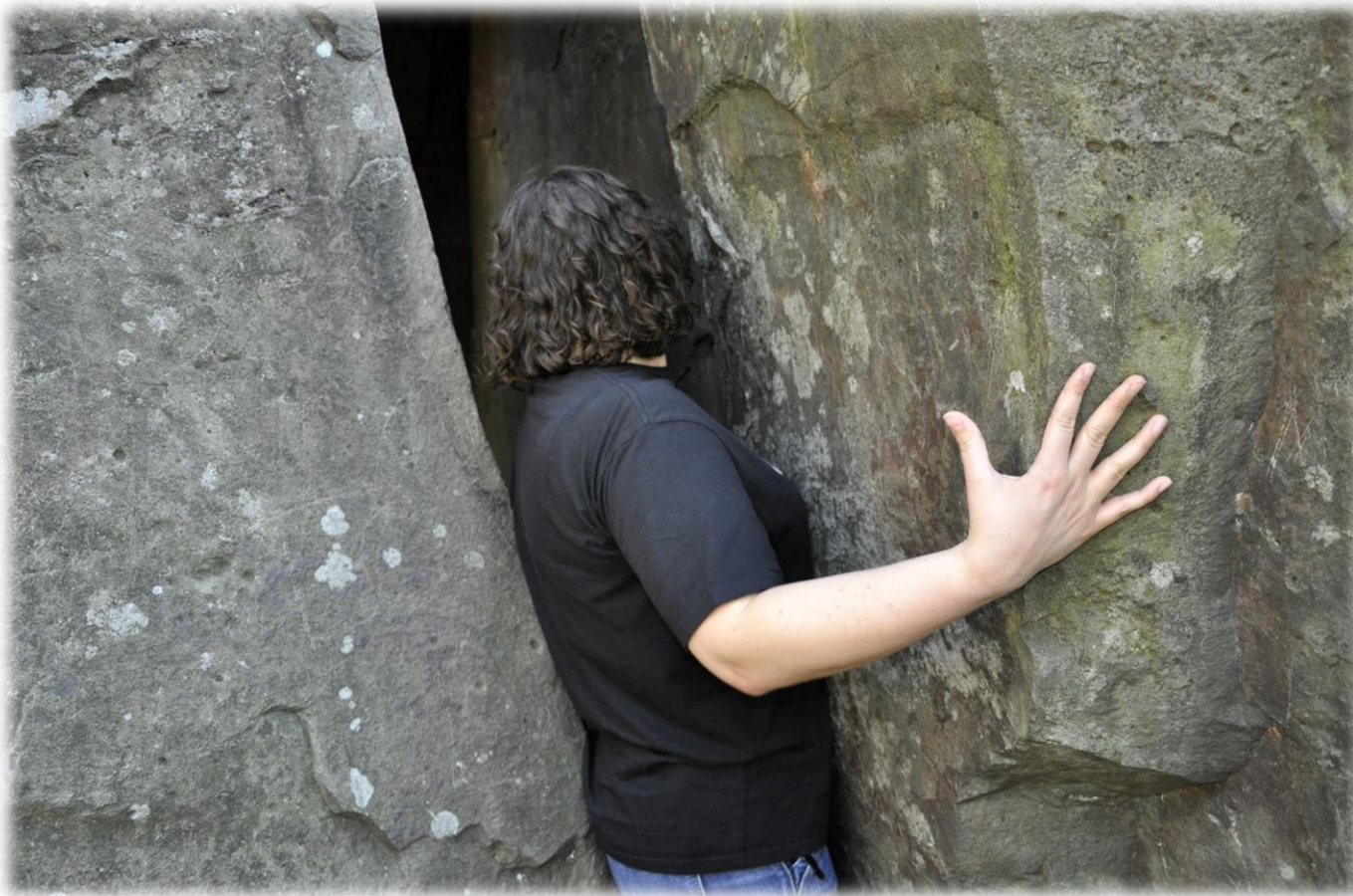
Internet Explorer	6.0	7.0	8.0	9.0	10.0
Chrome †	Latest stable				
Firefox †	Latest stable				
Safari	iOS 5.†	iOS 6.†	Latest stable (desktop)		
WebKit	Android 2.3.†	Android 4.†			
Node.js*	0.8.†	0.10.†			
Windows (Native)	Windows 8 Apps				

## ...meanwhile, back in IT land

- Standard desktop images evolve at a slow pace
- People bring their own devices to workaround IT
- IT likes IE because it is predictable... maybe even Firefox because it can be trusted enough
- Can't be too innovative because breaking something = trouble
- Understand IT's constraint is focused on risk (don't break things)



as a web developer, the reality is...





# back to basics

## HTML5

*Content*

## CSS3

*Presentation*

## JavaScript

*Behavior*

# back to basics

- Specifications leave room for interpretation
- Cross-browser interop focus has improved in past few years
  - Web Standards Project ACID tests
  - ECMAScript Test Suite
- Barrier to entry to profession is low
- Writing good markup, style sheets and script is hard
- Less-than-perfect markup power web apps big and small

# shipping standards compliant apps

1. Pick a DOCTYPE and stick to it
2. Separate content, presentation and behavior
3. Encode content properly
4. Use inline and block elements correctly
5. Make it easy to read and maintain
6. *\*Always\** validate markup, style sheets and scripts



# shipping standards compliant apps

- Pick a DOCTYPE and stick to it.
  - Strict – no presentation allowed in markup
  - Transitional – presentation elements still allowed ☹️
- Be aware of Standards, Almost Standards, and Quirks mode
  - See [colinb.me/QuirksMode](http://colinb.me/QuirksMode)

HTML DOCTYPEs	XHTML DOCTYPEs
Elements and attributes are case insensitive (e.g. <h1> is the same thing as <H1>)	Elements and attributes are case sensitive and are all lowercase
Not every element requires a closing tag (<p>), while others should not have a closing tag (<img>)	Elements must be explicitly closed (<p>...</p>), elements without content should be self closing (<img />)
Attribute values do not require quotes	Attribute values must be enclosed by quotes
Shorthand can be used for certain attributes (<input required>)	Full attribute form must be used for all attributes (<input required="required">)

# shipping standards compliant apps

- Separate content, presentation and behavior
- Style sheet references on top (head), scripts on the bottom (before closing html tag)
- Win on rendering speed as well as readability
  - [colinb.me/ProperPageIncludes](http://colinb.me/ProperPageIncludes)

```
<html lang="en">
<head>
<meta charset="utf-8" />
<title>All About Cats & Dogs</title>
<script>
  var x = 1 + 2;
</script>
<body>
<h1><font size="24px">Cats are fun</font></h1>
</body>
</html>
```

*Use external scripts*

*Use style sheets*

# shipping standards compliant apps

- Encode your content properly
- Language is declared in the document root
- Character set is first thing declared in the document header

```
<html lang="en">  
<head>  
  <title>All About Cats & Dogs</title>  
  <meta charset="utf-8" />
```

*Annotations:*

- A red arrow points from the `&` in the title to the `&amp;` above it.
- A red circle highlights the `&` in the title.

# shipping standards compliant apps

- Use inline and block elements correctly
- Browsers permit technically incorrect combinations
- “Build on blocks, inline on the inside”

`<a href="index.html"><h1>Cats</h1></a>`

`<h1><a href="index.html">Cats</a></h1>`

# shipping standards compliant apps

- Make it easy to read and maintain
- Use consistent indenting and casing
  - Make it easy to implement with tooling
  - Format Document in Visual Studio
  - HTML Tidy, CSS Tidy, JS Beautify open source tools
- Pick a naming convention and stick to it
  - No different than server-side coding styles
  - Jury is still out on hard rule when to reference by ID, class or element name
  - When planning out styles selector specificity applies

# shipping standards compliant apps

- **\*Always\*** validate markup, style sheets and scripts
- Tools available on most fronts:
  - Web-based - [colinb.me/W3CValidators](http://colinb.me/W3CValidators)
  - Browser extensions:
    - Firefox - [colinb.me/HtmlValidatorFirefox](http://colinb.me/HtmlValidatorFirefox)
    - Chrome - [colinb.me/HtmlValidatorChrome](http://colinb.me/HtmlValidatorChrome)
  - VS plugins:
    - Web Essentials - [colinb.me/vswebext](http://colinb.me/vswebext)
    - JSLint - [colinb.me/JsLint2012](http://colinb.me/JsLint2012)
  - Standalone – [www.htmlvalidator.com](http://www.htmlvalidator.com)
- Haven't seen reliable build process validator
  - Challenged by dynamic nature of markup

Demo

# VALIDATORS IN ACTION

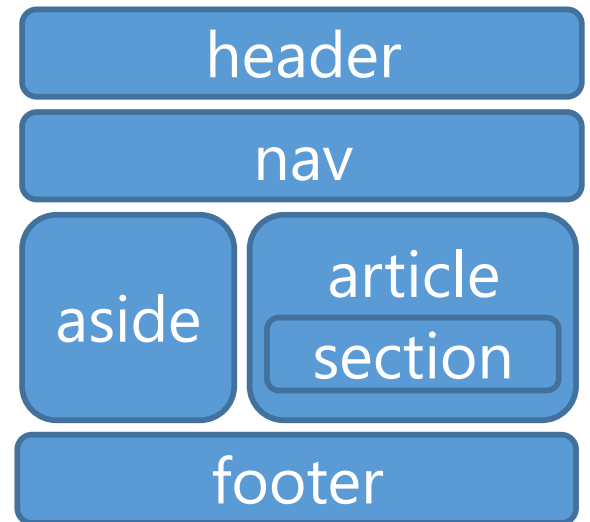


# taking advantage of the latest

- Supporting older browsers is not as painful these days
  - Remember, sites don't need to render the same across all browsers
- 10+ years to see the light
  - More smart people focused on the problem
  - Deeper knowledge and tooling for JavaScript
- Use polyfills to close gaps if needed
  - Manipulate the DOM to enable support of new features
  - Does have a performance impact – meant to be temporary workarounds rather than permanent fixes
  - [colinb.me/Html5Polyfills](http://colinb.me/Html5Polyfills)

# structural elements

- New elements introduced to address common scenarios seen across most web interfaces
- Data elements allow for richer interaction with content (`<time>`, `<command>`, `<progress>`)
- Use with older browsers using appropriate polyfill



Demo

**MODERNIZR**

# controls

- Form controls enable browsers to provide consistent input experience
  - Dates & Time, Number, Range, Email Address, URL, Color, Search
- Descriptive controls allow for behaviour and semantic description
  - Menu, Figure, Datagrid, Output, Time, Progress, Meter

Demo

# POLYFILLS

# layout and styling



- Rounded borders, shadowing, font enhancements for polished look-and-feel
- Normalize style rules rather than resetting them
  - LESS, SASS make rules manageable
- Avoid table-based layouts which increase render time and reduce responsiveness

# drag & drop

- Standardizes scenario that has been re-invented many times
  - Mark elements with **draggable** attribute
  - Mark target zones with **dropzone** attribute
  - Handle **ondrop** event to update back-end
- Wire into the file and touch events for rich experiences



# web sockets

- Two-way communication between client and server with persistent TCP connection
  - Less network overhead than long polling / streaming (Comet) or periodic refreshing (AJAX)
- Consider the scalability impact of open connections

Demo

**SIGNALR**

# data storage

- Session and Local Storage used for string values
  - Similar to HTTP cookies
  - **Session**: tied to top-level document
  - **Local**: tied to domain
- Indexed DB provides a SQL-like mechanism for storing and querying complex data structures

Demo

# JSTORAGE

# supporting apps with incompatibilities

- Enable IT to move on with a modern browser while supporting legacy applications
- Three approaches:
  - Host modern rendering engine in older browser – Chrome Frame
  - Host older rendering engine in newer browser – Browsium Ion
  - Application virtualization of older browser – Microsoft App-V
- What are you hearing from IT that prevents them from running the latest browsers?

# testing across the spectrum

- Lots of cross-browser testing tools on the market
  - [colinb.me/XBrowserTest](http://colinb.me/XBrowserTest)
- Automate test runs using open source or commercial tools
  - Selenium
  - Telerik Test Studio
  - Visual Studio Coded UI Tests
- Internet Explorer product group publishing great offers:
  - 3 month access to BrowserStack
  - VMs for Hyper-V, VMware Player/Workstation, VirtualBox, and Virtual PC
  - **\*Sold out\*** Heavily discounted copy of Windows 8 + Parallels for Mac
  - [modern.ie/virtualization-tools](http://modern.ie/virtualization-tools)

# next steps

- Use HTML5 and CSS3 today!
  - Bookmark HTML5 specs – [developers.whatwg.org](http://developers.whatwg.org)
  - Subscribe to CSS3 feed – [css3.info](http://css3.info)
  - Implement feature detection – [caniuse.com](http://caniuse.com)
  - Use polyfills when needed – [colinb.me/Html5Polyfills](http://colinb.me/Html5Polyfills)
- Advocate with stakeholders on
  - What is possible with sketches (linked to business value)
  - Cost of supporting older browsers



# resources

- UIs for Business Web Apps
  - [colinb.me/BizWebAppUI](http://colinb.me/BizWebAppUI)
- Top 10 App Design Mistakes
  - [colinb.me/TopUXMistakes](http://colinb.me/TopUXMistakes)
- HTML5 Polyfills
  - [colinb.me/Html5Polyfills](http://colinb.me/Html5Polyfills)
- HTML5 Rocks
  - [html5rocks.com](http://html5rocks.com)
- HTML5 Boilerplate
  - [html5boilerplate.com](http://html5boilerplate.com)
- HTML5 Browser-Feature Matrix
  - [caniuse.com](http://caniuse.com)