Behind the Scenes at USNews.com

By Russell Heimlich

About Russell Heimlich

- Graduated with a B.S. from the Art Institute of Philadelphia in Sep. 2006

- Front-end Developer (HTML/CSS/JavaScript) at USNews.com

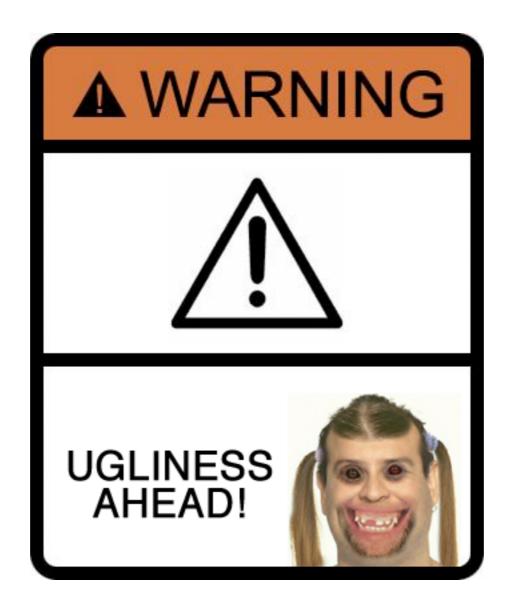- Worked there since Nov. 2006 (nearly 2 years)

Stats about USNews

- USNews is 75 Years old

- USNews.com is 13 years old

- 460,000 pages

- 66 unique stylesheets

- 4 frontend developers
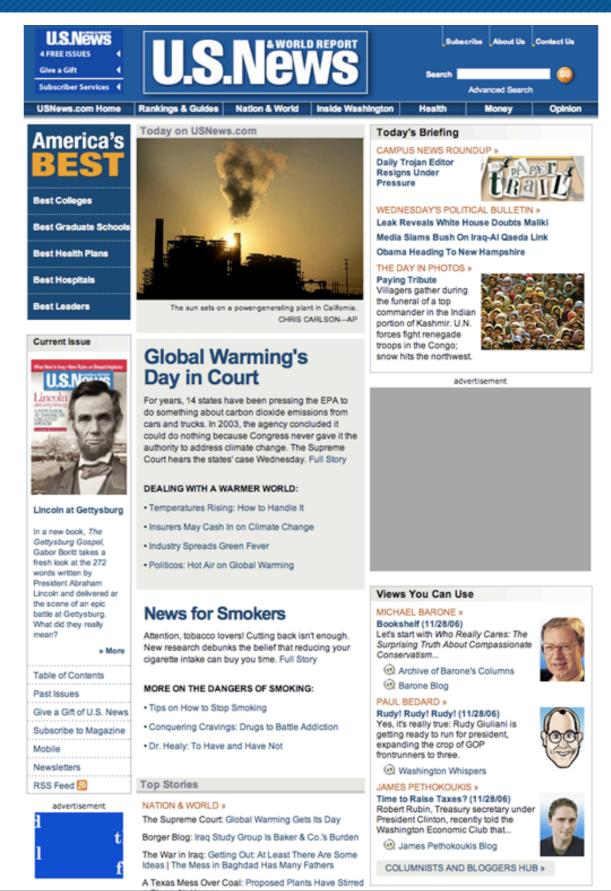
- Located right across the street

A Walk Down Memory Lane

This is what USNews.com looked like when I first arrived...

- Mostly tableless

- No CMS

- Updated by hand using Dreamweaver

- LOTS of PHP Includes

- Regularly scheduled syncs kept staging server and live site up to date.

Change Was In The Air!

- USNews worked with Siteworx on a new design and site architecture.

- Worked with Vanguardistas for a new CMS built on Zope.

I got to start over from scratch!

What's the source order?

How to organize the CSS?

- Global.css for things that appear sitewide
  - ▸ Header
  - ▸ Footer
  - ▸ Ad positions
  - ▸ Newsletter signup widget

- Specific styles for each page type
  - ▸ Homepage
  - ▸ Section
  - ▸ Articles
  - ▸ Blogs

Divide and Conquer

- We thought dividing each CSS file into sections would make it easier to maintain.

- Separated structure styles from visual styles.

- Indent CSS for maintainability.

```css
/* ---------------------------------
    Tabs
 --------------------------------- */
.tabs {
    height: 24px;
    margin: 12px 0px 0px 0px;
    overflow:hidden;
    padding: 0px;
    padding-left: 10px;
}

    .tabs li {
        float: left;
        overflow: hidden;
        width: 129px;
    }

        .tabs li a {
            color:#003399;
        }
```

Slow and Steady Integration

Moved everything into the CMS one thing at a time...

- Home page

- Section fronts

- Blogs

- Articles

- Data Projects (Best Colleges, Best Hospitals etc.)

Clean up!

After a year of the new design & the CMS, things were getting messy under the hood.

Homepage

- 1 HTML document (52.9K)

- 4 Style Sheet Files (34.0K)

- 18 JavaScript Files (161.0K)

Article

- 1 HTML document (28.7K)

- 16 Style Sheet Files (87.2K)

- 30 JavaScript Files (260.7K)

Problems

- Dividing CSS into Sections = Duplicate Code

- Indenting CSS = More Work!

- Too many requests/stylesheets

- CSS was not flexible enough for our needs

Problems

- A lot of CSS code just overwrote other CSS code

Problems

- Updating the same code in multiple places

- Blogs and Articles both use comments which required the same styles to be copied into two different stylesheets.

- To update, we must make a change to both stylesheets.

- Things were soon out of sync.

Problems

- The #1 culprit to our HTML/CSS woes was sloppy coding in our templates!

– Lack of common structure

– Unnecessary cruft

– Bloated CSS

The Fix

- Cleanup our templates

- Implement our own framework

- Modularize CSS

- Create a CSS hierarchy

Template Cleanup

- Reduce code where possible

- Reuse as much code as possible

-
 are stupid! (learn how to clear floats w/o markup)

What is a framework?

"A framework is a basic conceptual **structure** used to solve or address complex issues."

"A set of **interrelated reusable classes** which form the basis for an application."

"A framework is a **defined support structure** in which another software project can be organized and developed."
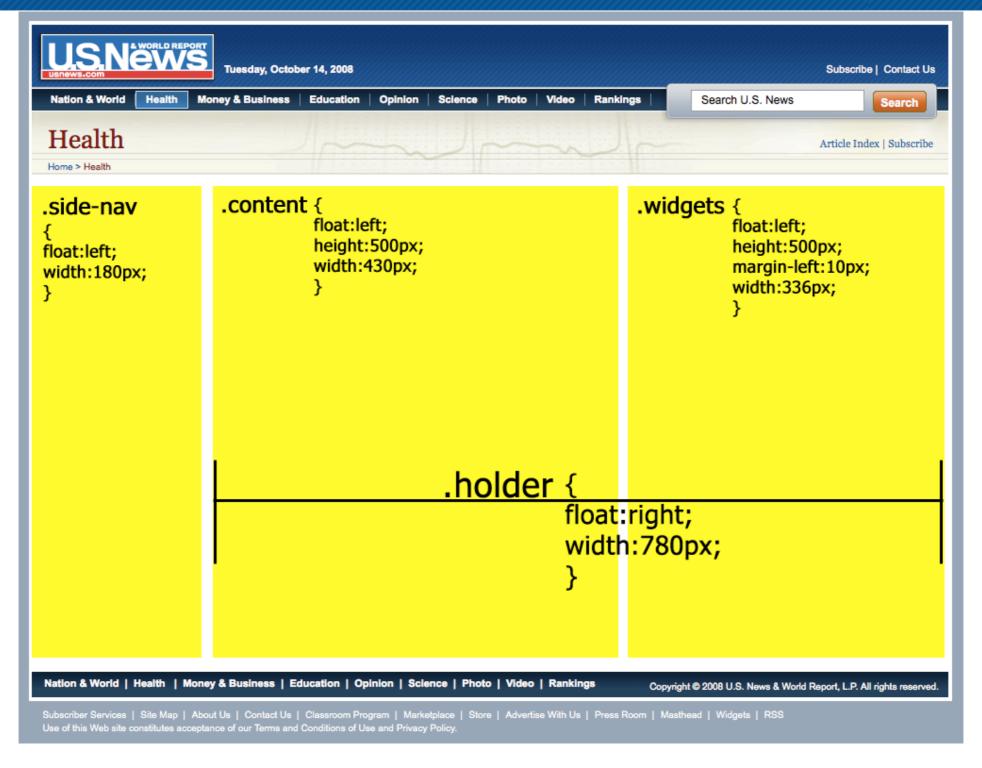
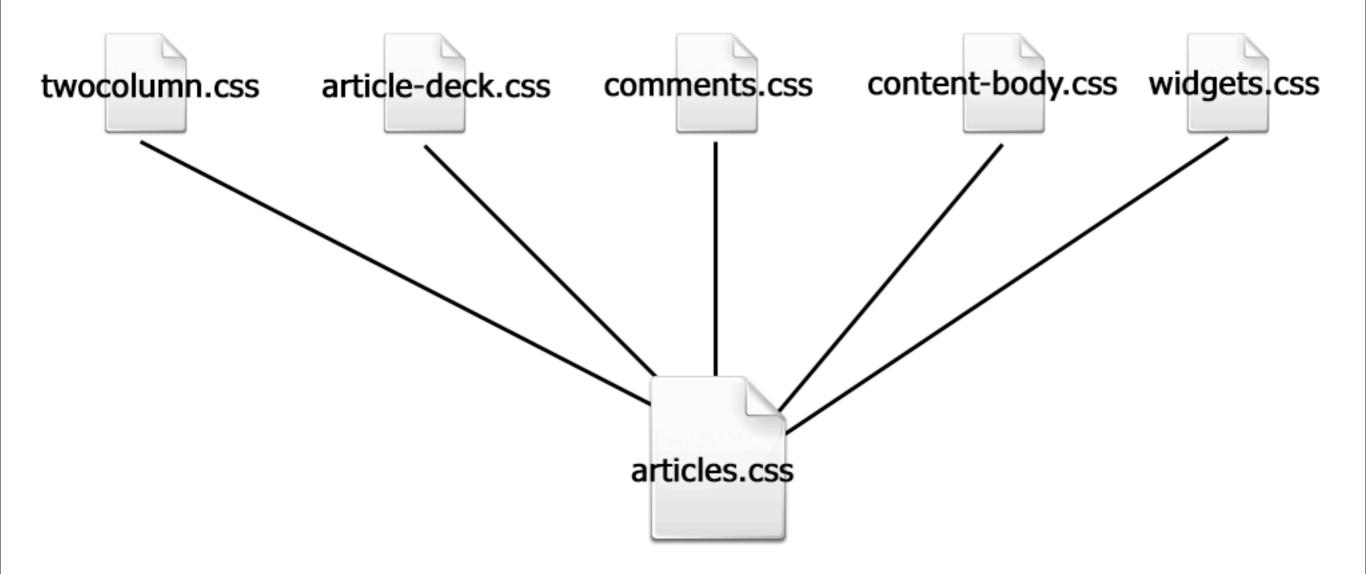In other words, a broad set of guidelines to structure our pages.

Two Column Layout

Three Column Layout

Modular CSS

The final CSS file is made up of smaller modules.

twocolumn.css   article-deck.css   comments.css   content-body.css   widgets.css

articles.css

Modular CSS

Everything is defined in one XML file and built when we push it live.

```
<file>
    <module/>
    <module/>
    ...
</file>
```

```xml
<file name="articles.css">
    <module name="twocolumn.css"/>
    <module name="article-deck.css"/>
    <module name="article-extra.css"/>
    <module name="comments.css"/>
    <module name="content-body.css"/>
    <module name="content-table.css"/>
    <module name="content-navigation.css"/>
    <module name="ibox.css"/>
    <module name="newsletter.css"/>
    <module name="sharetools.css"/>
    <module name="tabs.css"/>
    <module name="tags.css"/>
    <module name="quiz.css"/>
    <module name="widget.css"/>
    <module name="sponsor-simpletuition.css"/>
</file>
```
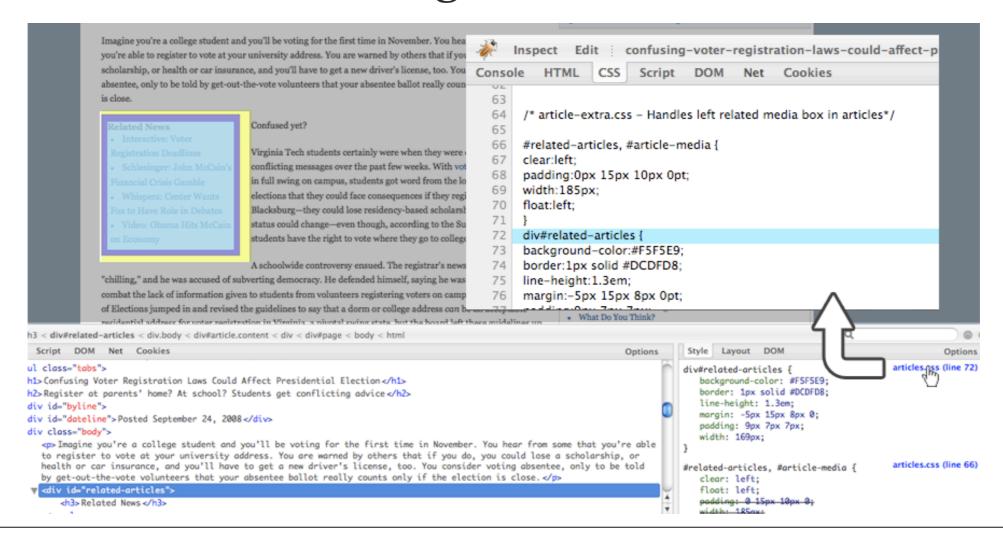
Modules

Each module has a comment at the top with the name of the module and a description.

This makes it easier to debug.

Auto Optimize

- Optimize with CSS Tidy

  - #ffffff -> #fff

  - margin:1px 1px 1px 1px -> margin:1px

  - color:#ff0000 -> color:red

CSS Hierarchy

- Site Wide (global.css)

- by Page Type (articles.css, blogs.css)

- by Section (news.css, business.css)

- for an individual page (custom CSS field in CMS)

A New Subdomain

- Moved all CSS/JavaScript to a new sub-domain, static.usnews.com

- Set-up a development static subdomain.

- Using bookmarklet, we can switch CSS of the live site to staging CSS.

Clean up!

After a year of the new design & the CMS, things were getting messy under the hood.

Homepage

- 1 HTML document (52.9K)

- 4 Style Sheet Files (34.0K)

- 18 JavaScript Files (161.0K)

Article

- 1 HTML document (28.7K)

- 16 Style Sheet Files (87.2K)

- 30 JavaScript Files (260.7K)

Final Results

Homepage

- 1 HTML document (22.3K)

- 2 Style Sheet Files (23.2K)

- 21 JavaScript Files (99.5K)

Article

- 1 HTML document (9.2K)

- 5 Style Sheet Files (53.1K)

- 29 JavaScript Files (91.0K)

Final Results

Article CSS

- 11 less stylesheets

- 33K smaller!

➡ Savings of 31GB in bandwidth per 1 million hits

Growing Pains

- One day we got linked to from the homepage of Yahoo!

Growing Pains

- One day we got linked to from the homepage of Yahoo!

Growing Pains

- One day we got linked to from the homepage of Yahoo!

- 15 minutes later we had to ask them to remove it

Growing Pains

- One day we got linked to from the homepage of Yahoo!

- 15 minutes later we had to ask them to remove it

Growing Pains

- One day we got linked to from the homepage of Yahoo!

- 15 minutes later we had to ask them to remove it

- Decided to run everything through Akamai

Akamai Works

- On America's Best Colleges launch day we served 15 million pageviews

- 2 million/hour

- The site didn't even hiccup!

Downsides to Cacheing

- Updating a site with cacheing is like tying your shoes with mittens on.

- Frequent little changes become impossible.

- Less flexibility is worth the stability!

A few more things...

We're Hiring!

- Front-end developers (HTML/CSS/JavaScript)

- Zope/Python Developers

- Send resume, cover letter, and salary requirements to rheimlich@usnews.com

How did I do?

- Please give me feedback at http://www.RussellHeimlich.com/barcamp

- Slides are available for download there too!

Questions?