

Speed Matters

Simple Ways to Make Your Web Site Faster



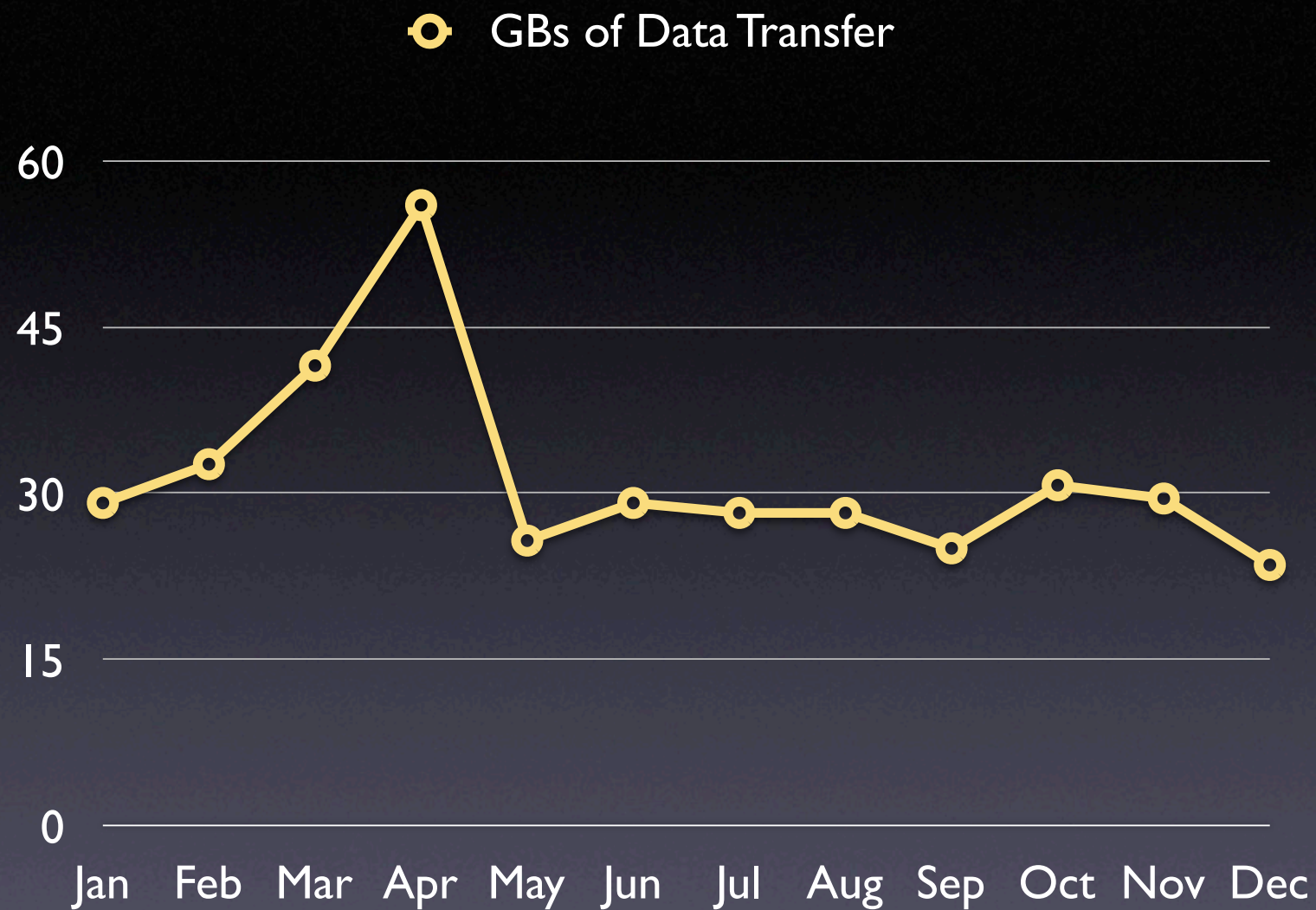
Flickr: Uploaded February 11, 2007 by hawridger

2003: Business Critical Look at Speed

- Customer complaints
- Limits of our 3 T-I's near
- Months away from new data center



Flickr: Uploaded November 13, 2003 by Wools



75% faster page loads

7 months in data center



Flickr: Uploaded August 2, 2006 by pbo31

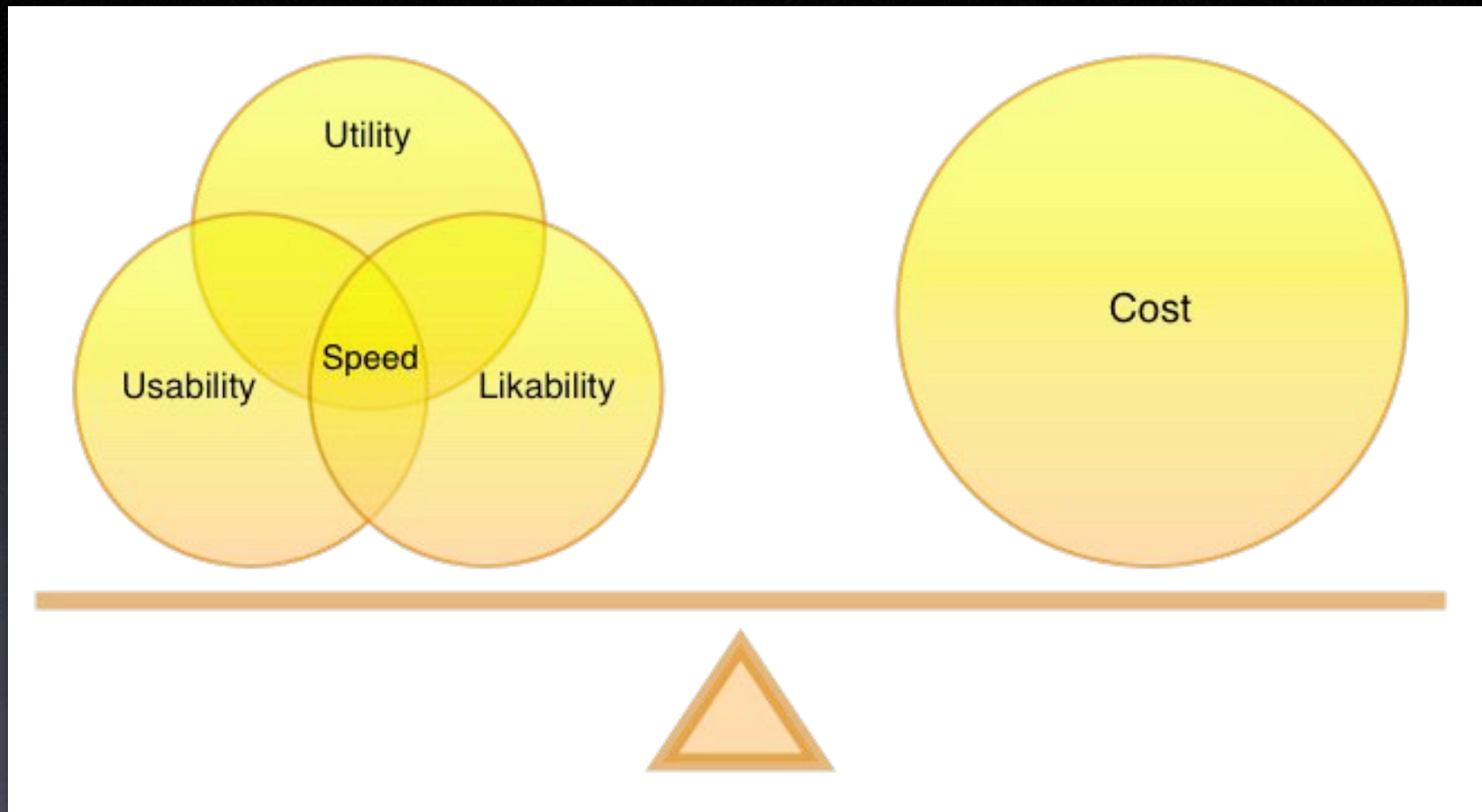
Speed Matters



- Why Speed Matters
- The Yahoo! 80/20 rule.
- Ten Techniques for Speed
- Case Studies
- Testing Your Work
- Homework Assignments


Flickr: Uploaded January 21, 2007 by themagnificentEM

Speed = Success



Shackel's Acceptability Paradigm

Source: Speed Up Your Site by Andrew King, p. 6.

A photograph of a green metal structure, possibly a mailbox or a small building, with the word "BRANDED" spray-painted in large, bold, black letters across its side. The structure is weathered and has some rust. The background is a light-colored wall. Overlaid on the image are several text elements in white with a slight shadow effect.

Web Speed = Perception
Quality

Usability

BRANDED

Credibility

Service

Flickr: Uploaded October 15, 2006 by mattlogelin

Optimizing for Flow

0.1 seconds —
Viewed as
Instantaneous

1.0 seconds —
Moving Freely

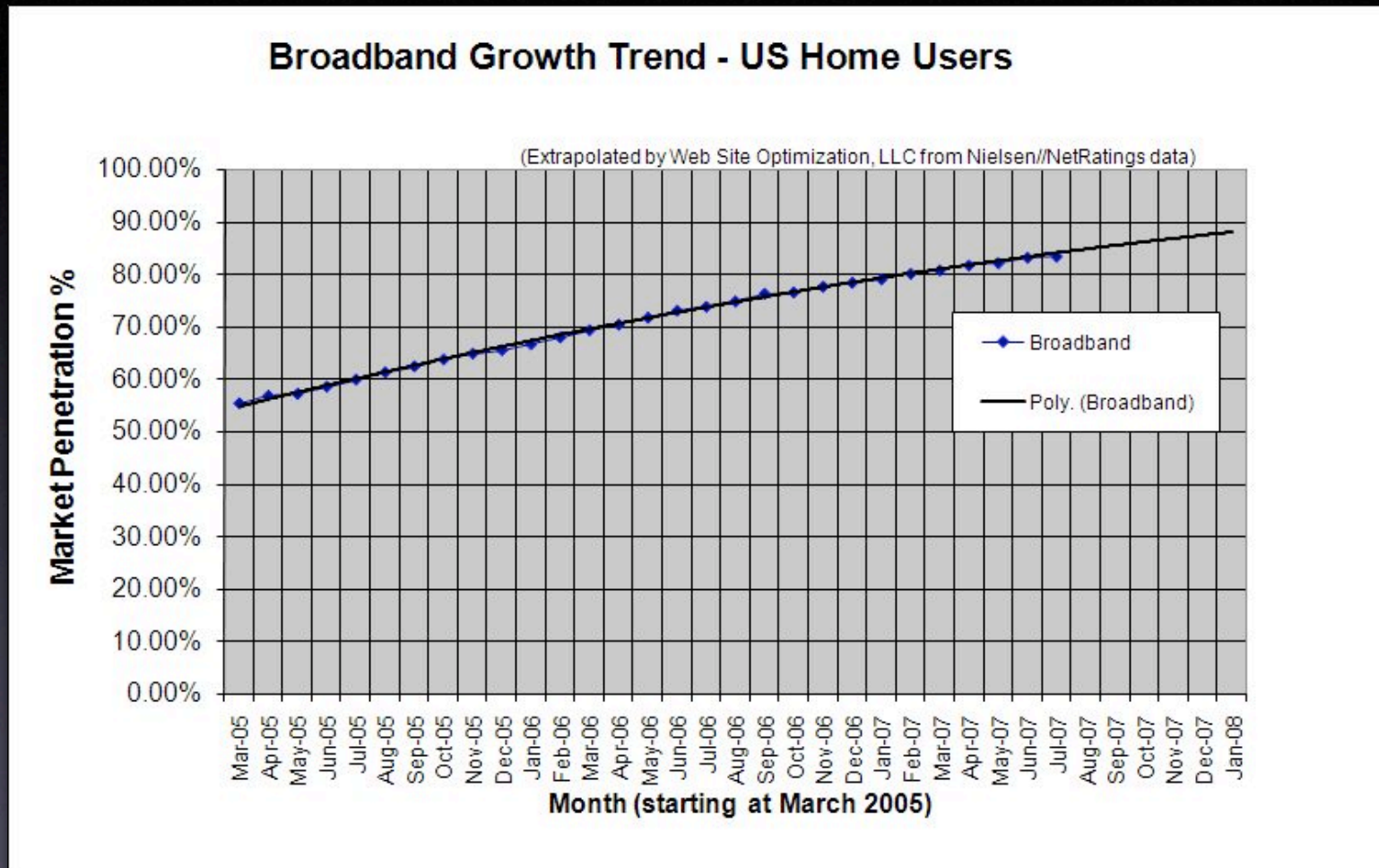
10 seconds —
Retain Focus on Task

Flickr: Uploaded August 7, 2007 by .Hessam

- 
- **Ecommerce Bailout Rates**
 - **Bandwidth Charges**

Flickr: Uploaded November 7, 2005 by Tracy O

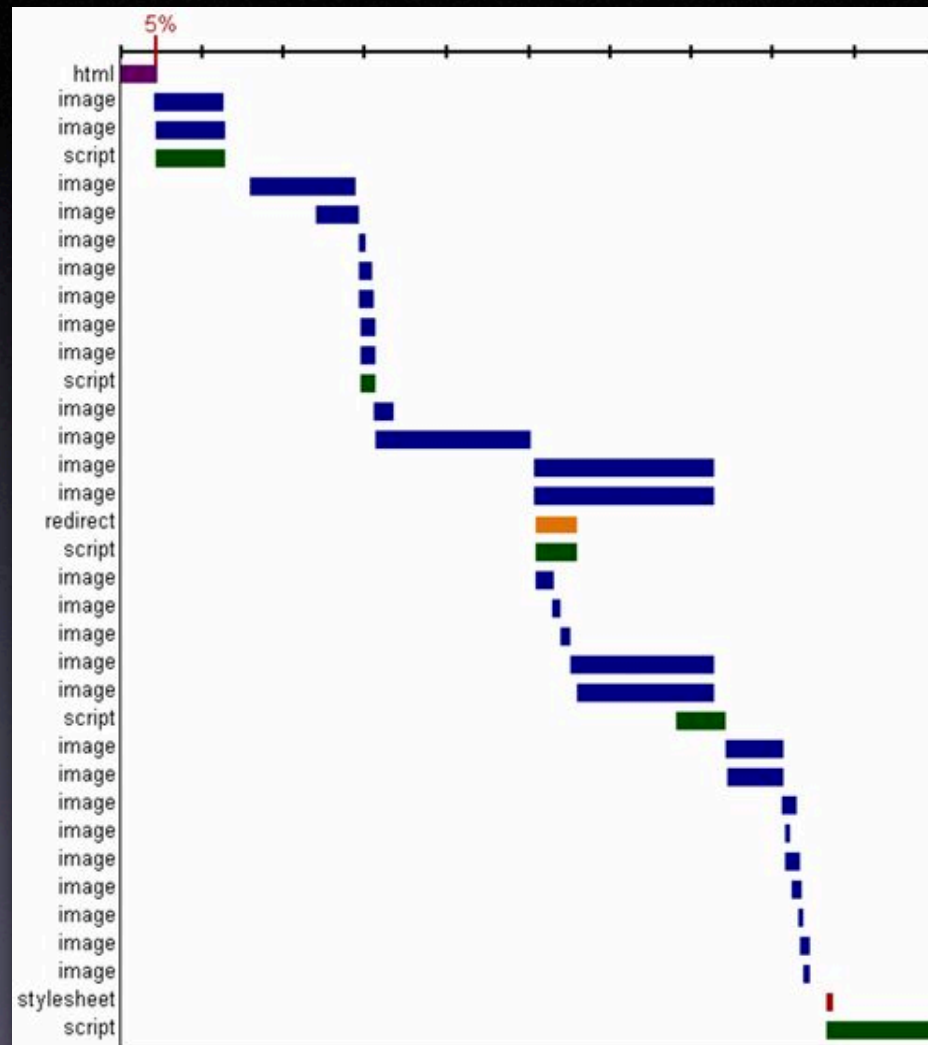
Broadband Solves this Right?



Source: <http://www.websiteoptimization.com/bw/0708>



Yahoo's 80/20 Rule



Source: <http://yuiblog.com/blog/2006/11/28/performance-research-part-1/>

Time Spent Loading Popular Sites

	Time Retrieving HTML	Time Elsewhere
Yahoo!	10%	90%
Google	25%	75%
MySpace	9%	91%
MSN	5%	95%
ebay	5%	95%
Amazon	38%	62%
YouTube	9%	91%
CNN	15%	85%

Source: <http://yuiblog.com/blog/2006/11/28/performance-research-part-1/>

10 Techniques for Speed

1. Web Standards
2. HTML Optimization
3. Speed Up Tables
4. CSS Optimization
5. Javascript Optimization
6. Increase Caching
7. Reduce DNS Lookups
8. Avoid Redirects
9. Fewer HTTP Requests
10. GZIP

Flickr: Uploaded July 24, 2006 by julipan

I. Web Standards

- CSS-based vs. table layouts
- Separate content, style, behavior
- Less markup overall
- Fewer http requests (no spacers)
- ESPN proved that this can be significant alone.

Flickr: Uploaded December 29, 2006 by bertheymans

2. HTML Optimization



- Remove Unnecessary White Space
- Replace HTML Comments with Server-side Comments
- Use Short URLs
- Minimize the size of the `<head>` tag.
- Reduce tables. Speed up those that remain.

Flickr: Uploaded March 15, 2007 by .dan

3. Speed Up Tables

- Enable Incremental Display
 - If you want the browser to format a table in one pass, you need to tell the browser the number of columns in the table and their widths.
- `<colgroup><col></col><col></col></colgroup>`
 - These Tags Declare Table Structure Allowing the Browser to Display the page in one pass
- Fixed Table Layout — `{ table-layout: fixed; }`
 - Microsoft Claims 100-Fold Improvement By Using this Code
 - Test before deploying

Flickr: Uploaded August 15, 2007 by bdesham

4. CSS Optimization

- Put stylesheets in the <head> tag only.
- Replace CSS Comments with Comments in Your Programming Language of Choice.
- Minify CSS (YUI Compressor)
- Let Stylesheets Cascade — Inherit Styles
- Use CSS Shorthand Properties (margin: 10px 5px 10px 5px; instead of margin-left, etc.)
- Optimize CSS Colors (#ffc instead of #ffffcc)

Flickr: Uploaded March 28, 2007 by mkw87

5. Javascript Optimization

- Put scripts at the bottom of the page.
- Minify Javascript (JSMIn or YUI Compressor)
- External files for caching purposes.
- Remove duplicate scripts
- Write efficient javascript

Flickr: Uploaded March 18, 2007 by Amodiovalerio Verde

A background image showing a pair of feet standing on a blue track with white lane lines. The image is slightly blurred and has a dark, semi-transparent overlay where the text is placed.

6. Increase Caching

- All content has a last-modified date
- Add Expires header to static content
- Develop plan for versions of static files so you can break the cache when needed.
- Configure or remove ETags from files. Removing them may be preferable.
- Watch your logs to make sure things are getting cached as you expect.

Flickr: Uploaded July 9, 2007 by John Wardell (Netinho)

7. Reduce DNS Lookups

- Each DNS lookup costs performance and you have no control over the DNS speed.
- Nothing can be downloaded from the domain until the lookup completes.
- Optimum is between 2 and no more than 4 domains per web page because of concurrent download benefits.

Flickr: Uploaded March 3, 2007 by André-Batista

8. Avoid Redirects

- Redirects cost the user time so avoid the easy ones.
- Permanent 301 redirects should be modified to be cacheable (expires header)
- Put the trailing slash on your links and shave time off of Apache doing the work.

Flickr: Uploaded September 17, 2006 by (nz) dave

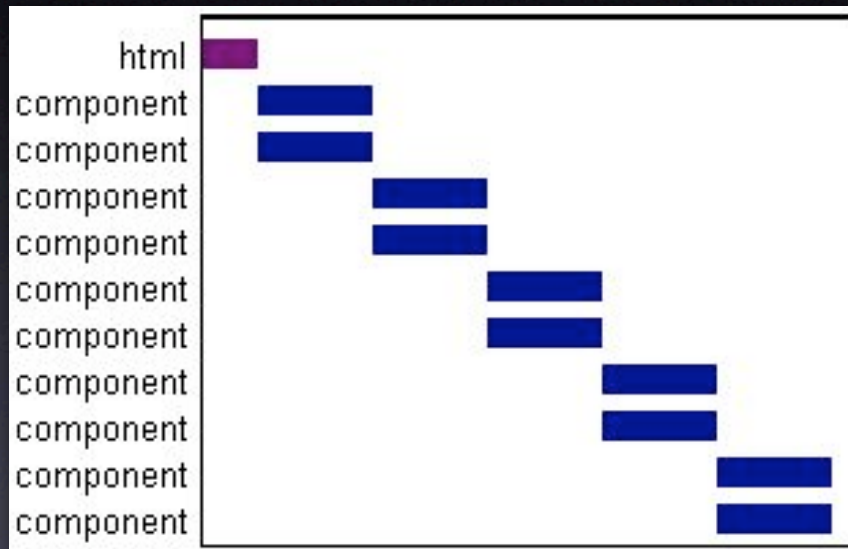
9. Fewer HTTP Requests

A large, bold, yellow-painted word "SLOW" is visible on a dark, textured asphalt surface. The paint is slightly worn and cracked, particularly around the 'S' and 'O'. The background is a dark, grainy texture of the road.

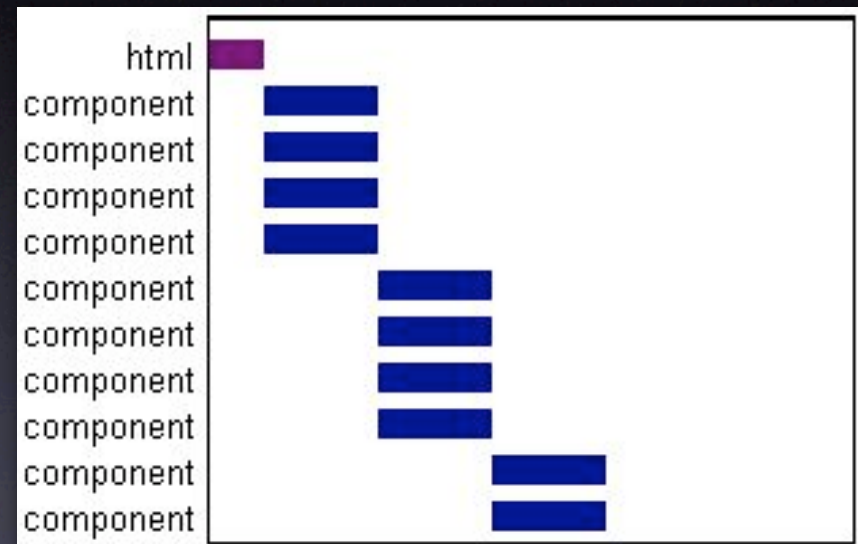
Most browsers only open 2 http connections to one domain at a time.

Flickr: Uploaded April 28, 2007 by ((IANB))

Parallel HTTP Requests



One Domain

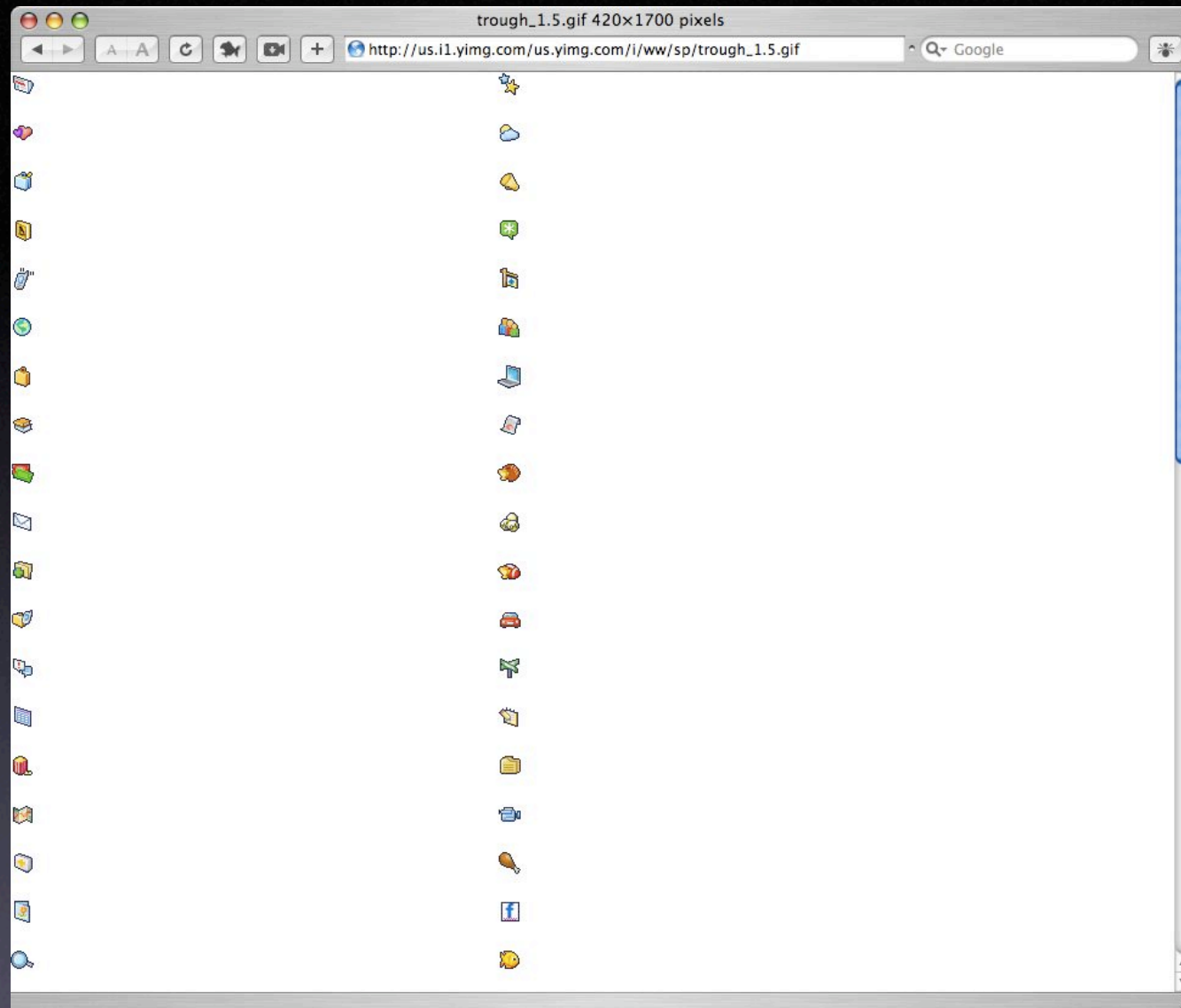


Two Domains

Source: <http://yuiblog.com/blog/2007/04/11/performance-research-part-4>

Reducing HTTP Requests

- CSS Sprite techniques for images
- Combine files into one stylesheet file, one javascript file.
- Ensure that only essential items get downloaded and once they are downloaded that they are cached.



74 icons in single file.

http://us.il.yimg.com/us.yimg.com/i/ww/sp/trough_1.5.gif

10. GZIP Compression

- If you do nothing else, DO THIS!
- GZIP can reduce files and download time up to 75%.
- Works on HTML, CSS, Javascript, XML and JSON files
- Most modern browsers handle GZIP correctly and the libraries like mod_gzip handle exceptions correctly.

Flickr: Uploaded February 11, 2007 by hawridger

Case Study

Version	HTML	CSS	JS	Total
Original	40,837 bytes	17,764 bytes	1,443 bytes	60,044 bytes
Optimized	24,907 bytes	5,320 bytes	1,443 bytes	31,670 bytes
GZIP	5,722 bytes	5,320 bytes	1,443 bytes*	12,485 bytes

Nearly 80% reduction in file size.

Testing Your Work

- Web Page Speed Report

<http://www.websiteoptimization.com/services/analyze/>
Integrated with Web Developer Toolkit

- YSlow Firefox Plugin (requires Firebug)

<http://developer.yahoo.com/yslow/>

- Live HTTP Headers Plugin

<http://livehttpheaders.mozdev.org>

Flickr: Uploaded February 11, 2007 by hawridger

Your Homework

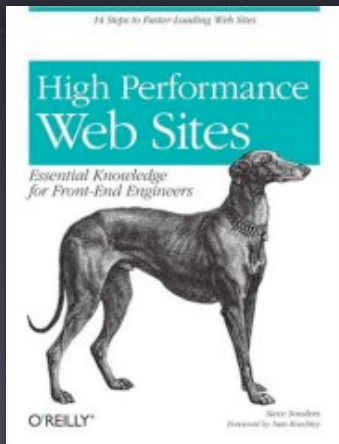
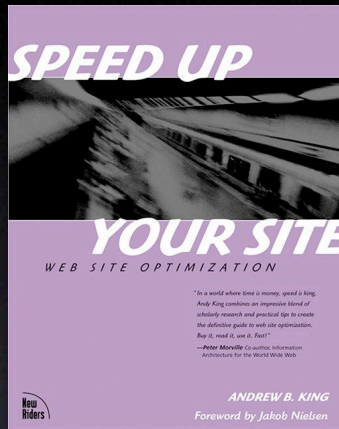
1. Find out if your company is using GZIP. If not, make it a priority.
2. Look for ways to consolidate your css and javascript files into a smaller number of files.
3. Work with your coworkers to establish standards for your organization.
4. GZIP! GZIP!

Speed: Easy, Fun & Addictive

- Speed truly does matter & broadband isn't going to save you
- There isn't a silver bullet (but GZIP comes close)
- # of HTTP request plays a huge role
- There are simple things you can do today.
- Race car mechanic shaving bits to save seconds

Flickr: Uploaded May 26, 2007 by pbo31

More Resources



- Speed Up Your Site by Andrew King
<http://www.speedupyoursite.com>
- High Performance Web Site by Steve Souders
- Yahoo! Exceptional Performance Team
<http://developer.yahoo.com/performance/>
- YSlow Plugin
<http://developer.yahoo.com/yslow>
- YUI Compressor
<http://developer.yahoo.com/yui/compressor/>
- Slides and additional materials available at:
<http://userfirstweb.com/>