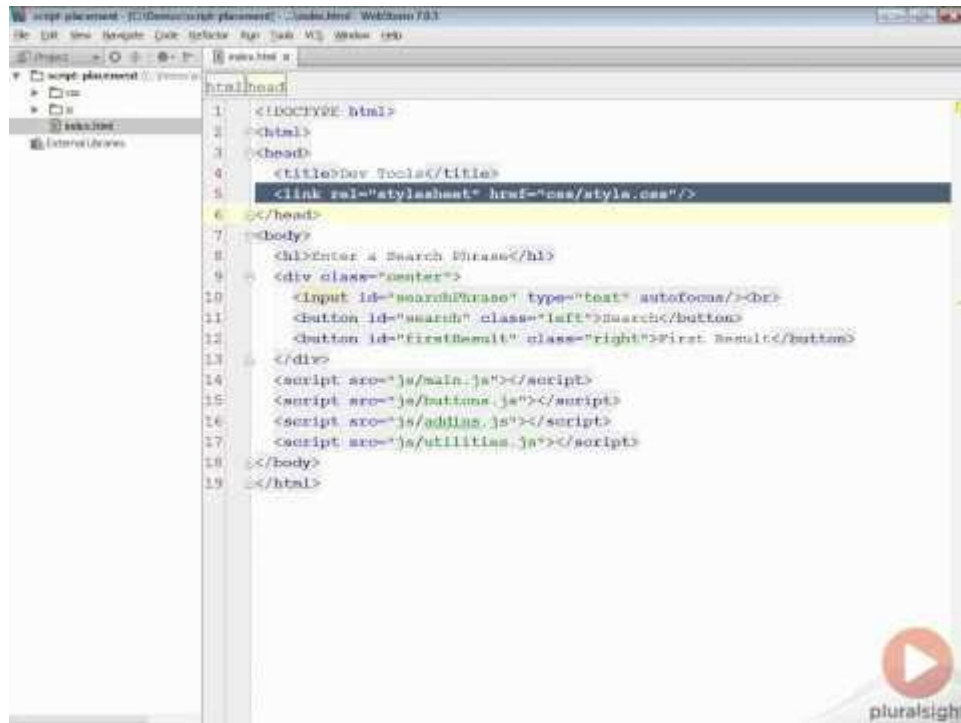

Performance

— huy.do@htklabs.com —

Agenda

- Script and CSS placement
- Benefit of Content Delivery Network
- Minification
- Concatenation

Script and CSS Placement



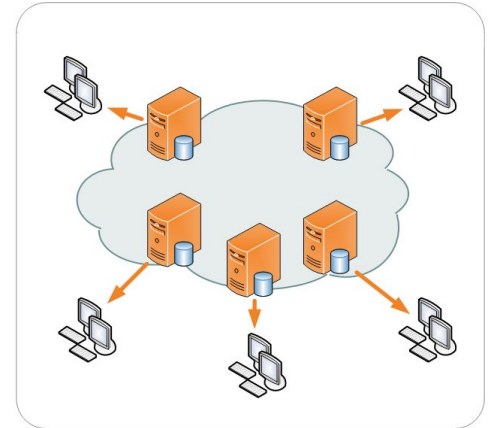
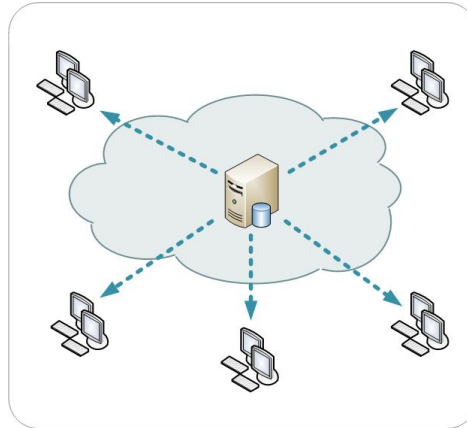
```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Dev Tools</title>
5   <link rel="stylesheet" href="css/style.css"/>
6 </head>
7 <body>
8   <h1>Enter a Search Phrase</h1>
9   <div class="center">
10     <input id="searchPhrase" type="text" autofocus/><br>
11     <button id="search" class="left">Search</button>
12     <button id="firstResult" class="right">First Result</button>
13   </div>
14   <script src="js/main.js"></script>
15   <script src="js/buttons.js"></script>
16   <script src="js/adidas.js"></script>
17   <script src="js/utilities.js"></script>
18 </body>
19 </html>
```

Script and CSS Placement

- Place CSS in the head tags
- Place Javascript at the end of body

CDN

- CDN (content delivery network or content distribution network) is a globally distributed network of proxy servers deployed in multiple data centers.
- The goal of a CDN is to serve content to end-users with high availability and high performance



CDN

- Benefit of CDN?

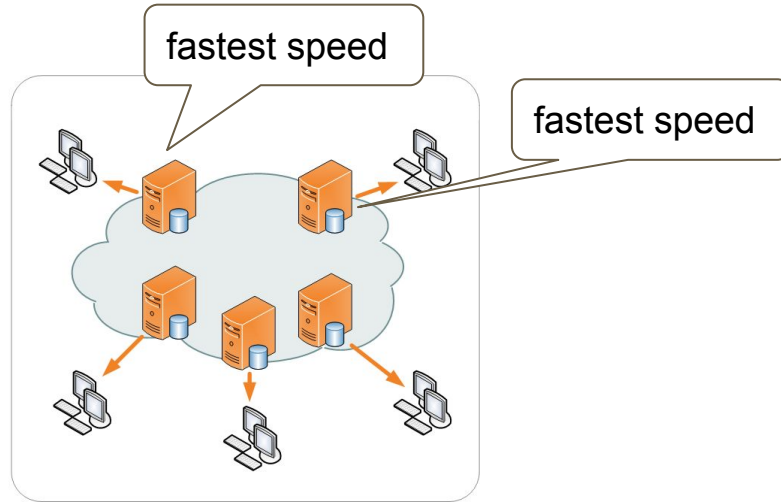
```
<script src="js/jquery.js"></script>
```

vs

```
<script src="//ajax.googleapis.com/ajax/libs/jquery/1.6.4/jquery.min.js"></script>
```

CDN

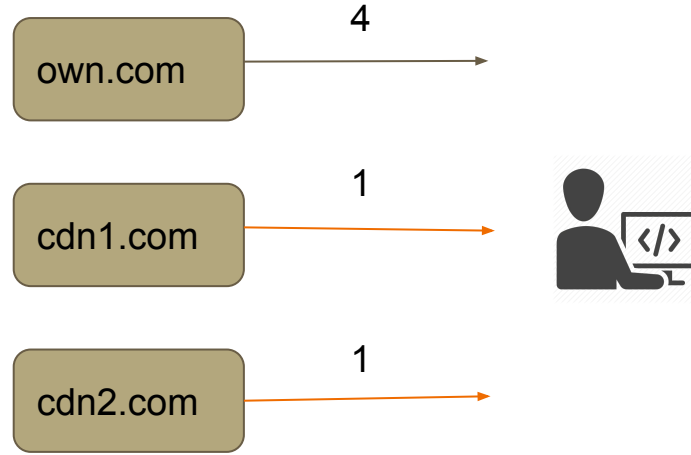
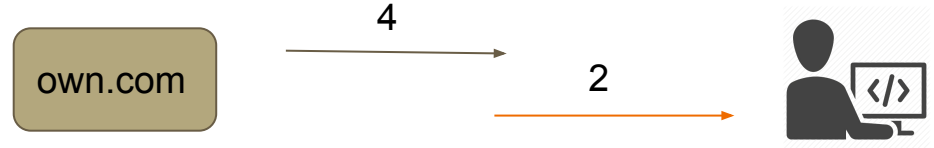
1. Distribution



CDN

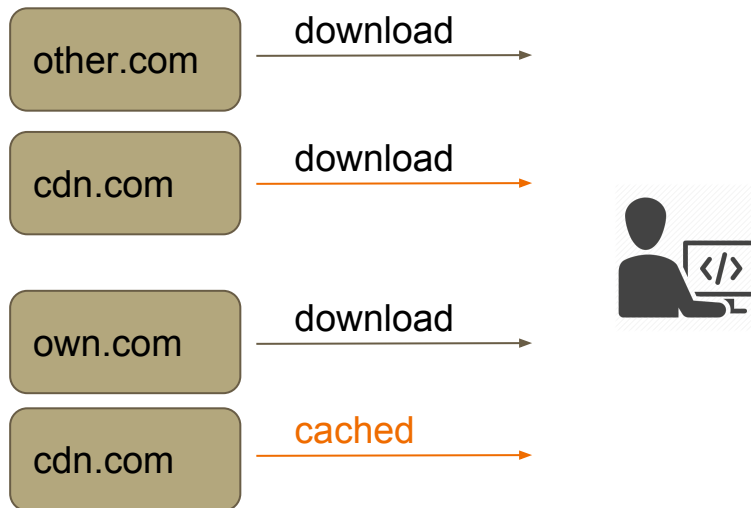
2. Difference domains

Browsers limit the number of concurrent connections (file downloads) to a single domain



CDN

2. Pre-caching



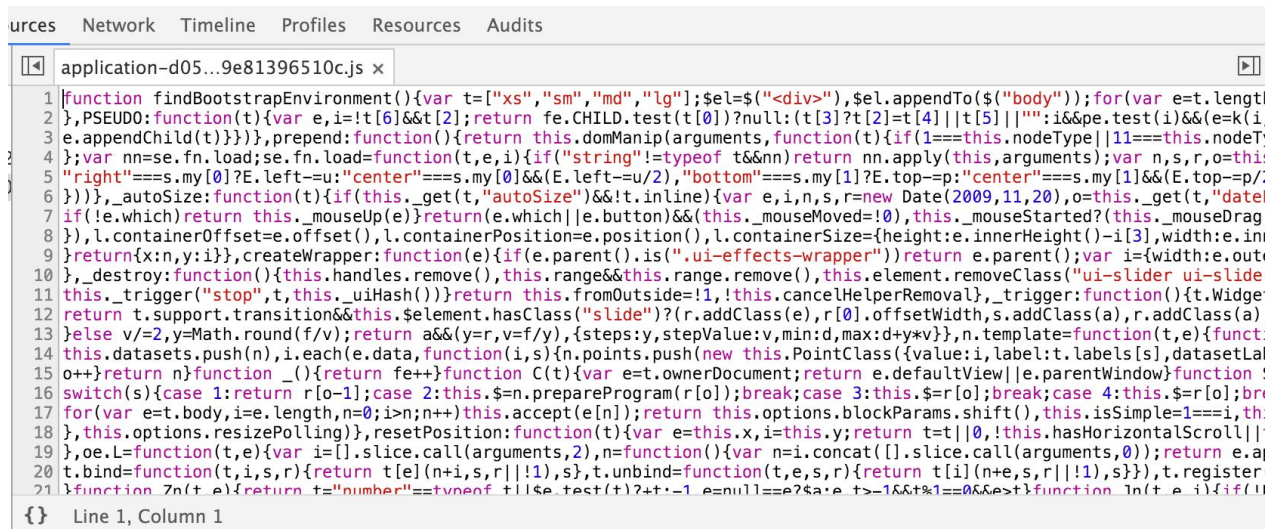
CDN

3. Built-in version control
4. Saving bandwidth

Minification

Why?

- Large file takes more time to download
- Whitespace is no sense for browser
- Leak code



The screenshot shows a web browser's developer console with the 'Sources' tab selected. The file 'application-d05...9e81396510c.js' is open. The code is minified, with line numbers 1 through 21 visible on the left. The code includes a function 'findBootstrapEnvironment' and various DOM manipulation and utility functions. The minification is evident from the lack of spaces and the use of single-letter variable names.

```
1 function findBootstrapEnvironment(){var t=["xs","sm","md","lg"];$.el=$("<div>"),$.el.appendTo($(".body"));for(var e=t.length
2 },PSEUDO:function(t){var e,i=!t[6]&&t[2];return fe.CHILD.test(t[0])?null:(t[3]?t[2]=t[4]||t[5]||"":i&&pe.test(i)&&(e=k(i
3 e.appendChild(t)})),prepend:function(){return this.domManip(arguments,function(t){if(1===this.nodeType||11===this.nodeType
4 });var nn=se.fn.load;se.fn.load=function(t,e,i){if("string"!==typeof t&&nn)return nn.apply(this,arguments);var n,s,r,o=this
5 "right"===s.my[0]?E.left=-u:"center"===s.my[0]&&(E.left=-u/2),"bottom"===s.my[1]?E.top=-p:"center"===s.my[1]&&(E.top=-p/
6 )}},_autoSize:function(t){if(this._get(t,"autoSize")&&!t.inline){var e,i,n,s,r=new Date(2009,11,20),o=this._get(t,"dateI
7 if(!e.which)return this._mouseUp(e)}return(e.which|e.button)&&(this._mouseMoved=!0),this._mouseStarted?(this._mouseDrag
8 )},l.containerOffset=e.offset(),l.containerPosition=e.position(),l.containerSize={height:e.innerHeight()-i[3],width:e.inn
9 }return{x:n,y:i}},createWrapper:function(e){if(e.parent().is(".ui-effects-wrapper"))return e.parent();var i={width:e.out
10 },_destroy:function(){this.handles.remove(),this.range&&this.range.remove(),this.element.removeClass("ui-slider ui-slide
11 this._trigger("stop",t,this._uiHash())}return this.fromOutside=!1,this.cancelHelperRemoval,_trigger:function(){t.Widge
12 return t.support.transition&&this.$element.hasClass("slide")?(r.addClass(e),r[0].offsetWidth,s.addClass(a),r.addClass(a)
13 }else v/=2,y=Math.round(f/v);return a&&(y=r,v=f/y),{steps:y,stepValue:v,min:d,max:d+y*v}},n.template=function(t,e){func
14 this.datasets.push(n),i.each(e.data,function(i,s){n.points.push(new this.PointClass({value:i,label:t.labels[s],datasetL
15 o++})return n}function _(){return fe++}function C(t){var e=t.ownerDocument;return e.defaultView||e.parentWindow}function !
16 switch(s){case 1:return r[o-1];case 2:this.$=n.prepareProgram(r[o]);break;case 3:this.$=r[o];break;case 4:this.$=r[o];br
17 for(var e=t.body,i=e.length,n=0;i>n;n++)this.accept(e[n]);return this.options.blockParams.shift(),this.isSimple=1===i,th
18 },this.options.resizePolling}},resetPosition:function(t){var e=this.x,i=this.y;return t[0]||0,!this.hasHorizontalScroll||
19 },oe.L=function(t,e){var i=[].slice.call(arguments,2),n=function(){var n=i.concat([].slice.call(arguments,0));return e.a
20 t.bind=function(t,i,s,r){return t[e](n+i,s,r||1),s},t.unbind=function(t,e,s,r){return t[i](n+e,s,r||1),s}},t.register
21 }function Zn(t,e){return t="number"===typeof t||$.test(t)?t+-1:e=null===e?$.e.t>-1&&t*1==0&&e>t}function ln(t,e,i){if(!
{ } Line 1, Column 1
```

Minification

How?

- Remove whitespaces
- Replace variable name with shorter one



or



Concatenation

Why?

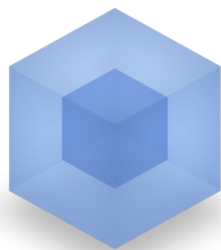
- Old browser limit number of external files
- Browser is limit number of connection in parallel
- More connections take more time to load
- Browser don't care wherever script come from

```
34 // concat static scripts into 1 files.
35 gulp.task('concat-development-static', function() {
36   gulp.src(srcStatic)
37     .pipe(sourcemaps.init())
38     .pipe(concat('static.js'))
39     .pipe(uglify())
40     .pipe(sourcemaps.write())
41     .pipe(gulp.dest(config.dist))
42 });
43
44
45 // concat static scripts into 1 files.
46 gulp.task('concat-development-dynamic', function() {
47   gulp.src(config.dynamicJS.concat(config.dynamicJSDev))
48     .pipe(sourcemaps.init())
49     .pipe(concat('dynamic.js'))
50     .pipe(uglify())
51     .pipe(sourcemaps.write())
52     .pipe(gulp.dest(config.dist))
53 });
54
```

Concatenation

How?

- Combine files into one file for each type (css, javascript)
- Be careful order of script when concating



webpack
MODULE BUNDLER



or



Assignment

1. Create a new project or using an exist project, run project in 2 scenarios and check loading time (using dev tool and no-cache mode):
 - Using jquery library 1.11.3 in local server
 - Using jquery from google cdn

Clear cache and run again with order, check loading time

- Visit <http://getbootstrap.com/>
- Visit project with google cdn

Assignment

2. Research performance tools:

- <http://yslow.org>
- Chrome profile
- Firefox performance

* Research = research + practice + presentation



Q&A



Thanks for your listening!
