RESILIENT FRONT ENDS
The page cannot be displayed

There is a problem with the page you are trying to reach and it cannot be displayed.

Please try the following:

- Open the home page, and then look for links to the information you want.
- Click the Refresh button, or try again later.
- Click Search to look for information on the Internet.
- You can also see a list of related sites.

HTTP 500 - Internal server error
Internet Explorer
There was a problem serving the requested page.

Usually this means that an unexpected error happened while processing your request. Here's what you can try next:

- Refresh the page, the problem may be temporary.
- If the problem persists, contact us and we'll help get you on your way.

- Open the home page, and then look for links to the information you want.
- Click the Refresh button, or try again later.
- Click Search to look for information on the Internet.
- You can also see a list of related sites.

HTTP 500 - Internal server error
Internet Explorer
The page doesn't exist. It suggests:

- Open the home page, and then look for links information you want.
- Click the Refresh button, or try again later.
- Click Search to look for information on the
- You can also see a list of related sites.

HTTP 500 - Internal server error
Internet Explorer
Something is technically wrong.
Thanks for noticing—we’re going to fix it up and have things back to normal soon.
waiting for fonts.com
Unreliable
Resilient

http://www.flickr.com/photos/vpickering/6824364286/

Sunday, May 11, 14
Progressive enhancement

So, the conclusion is that this is the best way to deal with this. Yay us.
Next, how do we do that.

http://www.flickr.com/photos/8040811@N06/3167877765
THREE STAGES

- Content
- Enhancement
- Leftovers
THREE STAGES

Content
Enhancement
Leftovers
THREE STAGES

- Content
- Enhancement
- Leftovers
THREE STAGES

- Content
- Enhancement
- Leftovers
Time to screen
The network
The network

- DNS lookup time
- Connect time
- Redirect time
- SSL handshake time
- Time to first byte
The browser
The browser

- Single threaded event loop
- Construct DOM tree from HTML
- Construct render tree from DOM tree and stylesheets
What blocks DOM construction?

Except:
What blocks DOM construction?

- Fetch of remote scripts that need to be executed synchronously
- Inline script node that is waiting on relevant stylesheet fetch

Except:
What blocks DOM construction?

- Fetch of remote scripts that need to be executed synchronously
- Inline script node that is waiting on relevant stylesheet fetch

Except:

- Scripts with async/defer attributes
- Stylesheets with non-matching media
What blocks render tree?
What blocks render tree?

- Blocked by fetching stylesheets
HTML pre-parser
HTML pre-parser

HTML → HTML

JS → HTML
Blocking JavaScript

```html
<script>
var script = document.createElement('script');
script.src = "app.js";
document.head.appendChildChild(script);
</script>
```
<script>
var script = document.createElement('script');
script.src = "app.js";
document.head.appendChild(script);
</script>

NO PRE-PARSER!
Blocking JavaScript

```html
<script src="app.js" async defer></script>
```
Blocking web fonts
Blocking web fonts
Blocking web fonts
Blocking web fonts
# Blocking web fonts

<table>
<thead>
<tr>
<th>FALLBACK</th>
<th>BLOCKING</th>
<th>BLOCKING + TIMEOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Explorer</td>
<td>Safari</td>
<td>Firefox</td>
</tr>
<tr>
<td></td>
<td>Mobile Safari</td>
<td>Opera (Presto)</td>
</tr>
<tr>
<td></td>
<td>Chrome</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Opera (Blink)</td>
<td></td>
</tr>
</tbody>
</table>
Web font loader

- Provide control over font loading
- Remove fonts from the critical path
- Make cross-browser behaviour consistent
Web font loader

```html
<link href="/myfonts.css" rel="stylesheet" />
```
Web font loader

```html
<link href="/myfonts.css" rel="stylesheet" />
```
Web font loader

```javascript
var WebFontConfig = {
    custom: {
        families: ['Clarendon', 'Clarendon Bold'],
        urls: ['/myfonts.css']
    }
};
```
Web font loader

```html
<link href="/myfonts.css" rel="stylesheet"/>

```var WebFontConfig = {
    custom: {
        families: ['Clarendon', 'Clarendon Bold'],
        urls: ['/myfonts.css']
    }
};
```

```javascript
var s = document.createElement('script');
s.src = '//ajax.googleapis.com/webfonts.js';
document.head.appendChild(s);
```
Web font loader

```html
<body class="clarendon-loading">

<body class="clarendon-loaded">
```
Web font loader

```html
<body class="clarendon-loading">

<head>

</head>

<body class="clarendon-loaded">

<h1>
  font-family: georgia, serif;
</h1>

.clarendon-loaded h1 {
  font-family: Clarendon, georgia, serif;
}
```
Blocking CSS
## Performance Results (Median Run)

<table>
<thead>
<tr>
<th></th>
<th>Load Time</th>
<th>First Byte</th>
<th>Start Render</th>
<th>Speed Index</th>
<th>Document Complete</th>
<th>Fully Loaded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Time</td>
<td>Time</td>
</tr>
<tr>
<td>First View (Run 7)</td>
<td>3.675s</td>
<td>0.000s</td>
<td>0.762s</td>
<td>2680</td>
<td>3.675s</td>
<td>3.736s</td>
</tr>
<tr>
<td>Repeat View (Run 4)</td>
<td>2.437s</td>
<td>0.000s</td>
<td></td>
<td>10320</td>
<td>2.437s</td>
<td>3.869s</td>
</tr>
</tbody>
</table>

http://www.webpagetest.org/result/130908_K2_796/
Median of nine test runs

http://www.webpagetest.org/result/130908_K2_796/
Median of nine test runs

iPhone 4, iOS 5.1

http://www.webpagetest.org/result/130908_K2_796/
Median of nine test runs
iPhone 4, iOS 5.1
3G (1.6Mps, 300ms RTT)

http://www.webpagetest.org/result/130908_K2_796/
Thank-you!

http://lanyrd.com/scyqxd
@andyhume

Creative Commons Licensed
Attribution, Non-Commercial, Share Alike