

Progressive Enhancement with JavaScript

Aaron Gustafson



What is Progressive Enhancement?

Progressive Enhancement vs. Graceful Degradation

Graceful Degradation

- A holdover from engineering
- Build for the latest browsers
- Test on older devices
 - ▶ Happens at the end
 - ▶ Accounts for few versions
- Expects a poor experience for older browsers
- Fixes major issues but little else



The screenshot shows the homepage of the easy designs website. At the top left is the company logo, which consists of three overlapping green squares of increasing size from left to right. To the right of the logo is the word "easy" in a lowercase sans-serif font and "designs" in a slightly larger, lowercase sans-serif font.

WHO WE ARE

Easy! Designs was started by Aaron Gustafson, an internationally renown web developer and educator, and is staffed by a dedicated team of well-known designers, developers, and architects from across the world. First and foremost, we make websites, but we also write books and provide expert training for web teams and individuals.

SELECTED WORK

Below this heading are three rows of thumbnail images. The first row shows a screenshot of a website, a close-up of a hand holding a smartphone displaying a mobile interface, and another screenshot of a website. The second row shows a book cover for "Accelerated DOM Scripting with Ajax, APIs, and Libraries", a photo of a person's hands interacting with a smartphone screen, and a book cover for "DOM Scripting: Dynamic Web Design Techniques". The third row shows a screenshot of a website, a photo of a hand holding a smartphone, and a screenshot of a website featuring a coffee cup.

NEED HELP?

If you are interested in contacting us about a project, please fill in the following details about yourself (and the project you have in mind for us) and someone will be in touch shortly.

Required fields are marked *.

About You

Name*

Company*

E-mail*

Phone

About the Project

Project Type*

Timeframe*

Description*



Who we are

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Selected Work



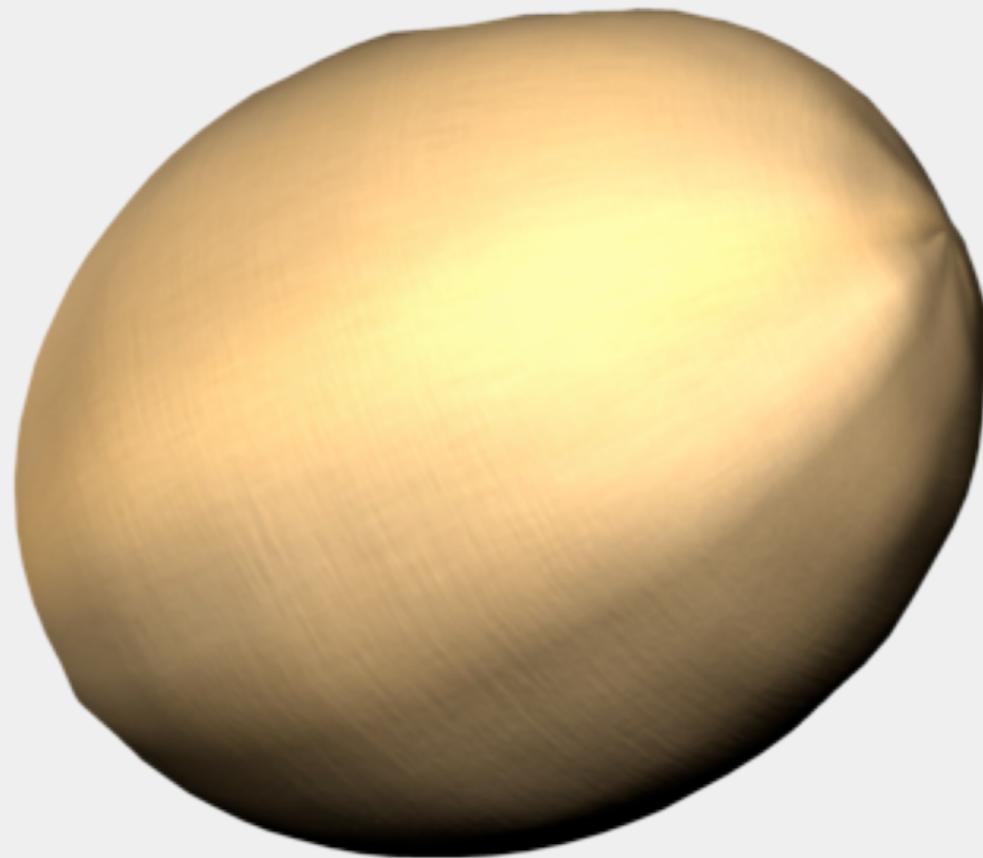
Progressive Enhancement focuses on **content**

Content is
why we build websites
and should be
our central focus

How does it work?



Flavorful nugget of content (semantic goodness)



Rich, indulgent design



Sweet interactivity

(keeps it from melting in your hands)





Technologies applied as layers



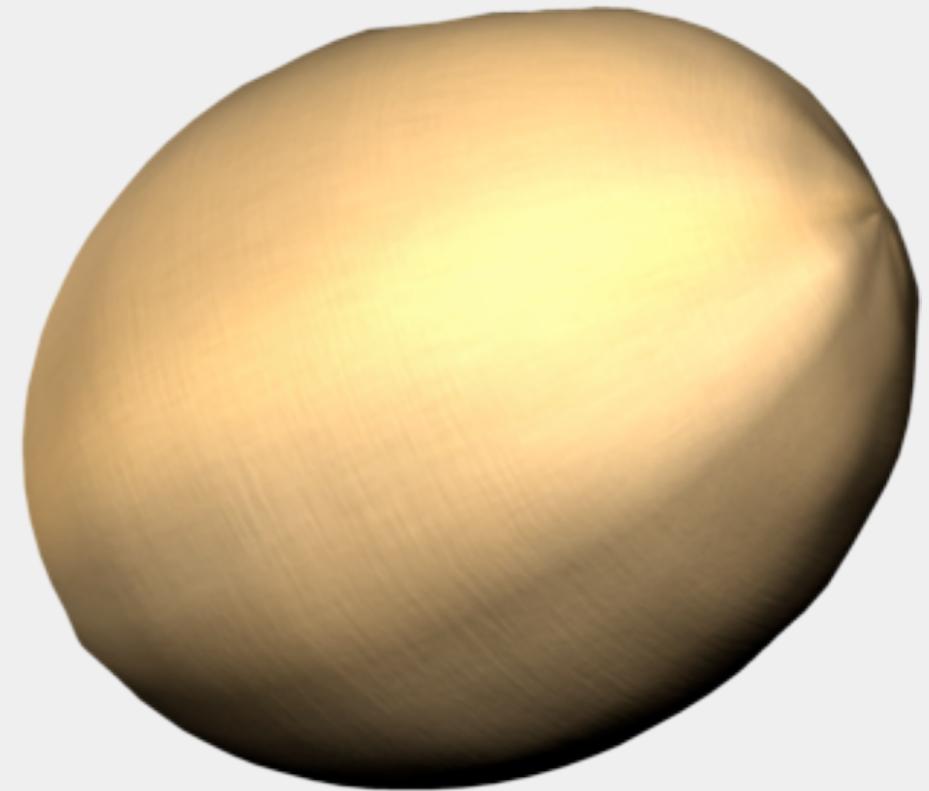


(Mr. Clarke's web standards trifle)

Why a peanut m&m?

The peanut is good for

- ➊ diabetics
- ➋ search engine spiders
- ➌ mobile devices



It's a basic level
of support

Rich, chocolaty goodness

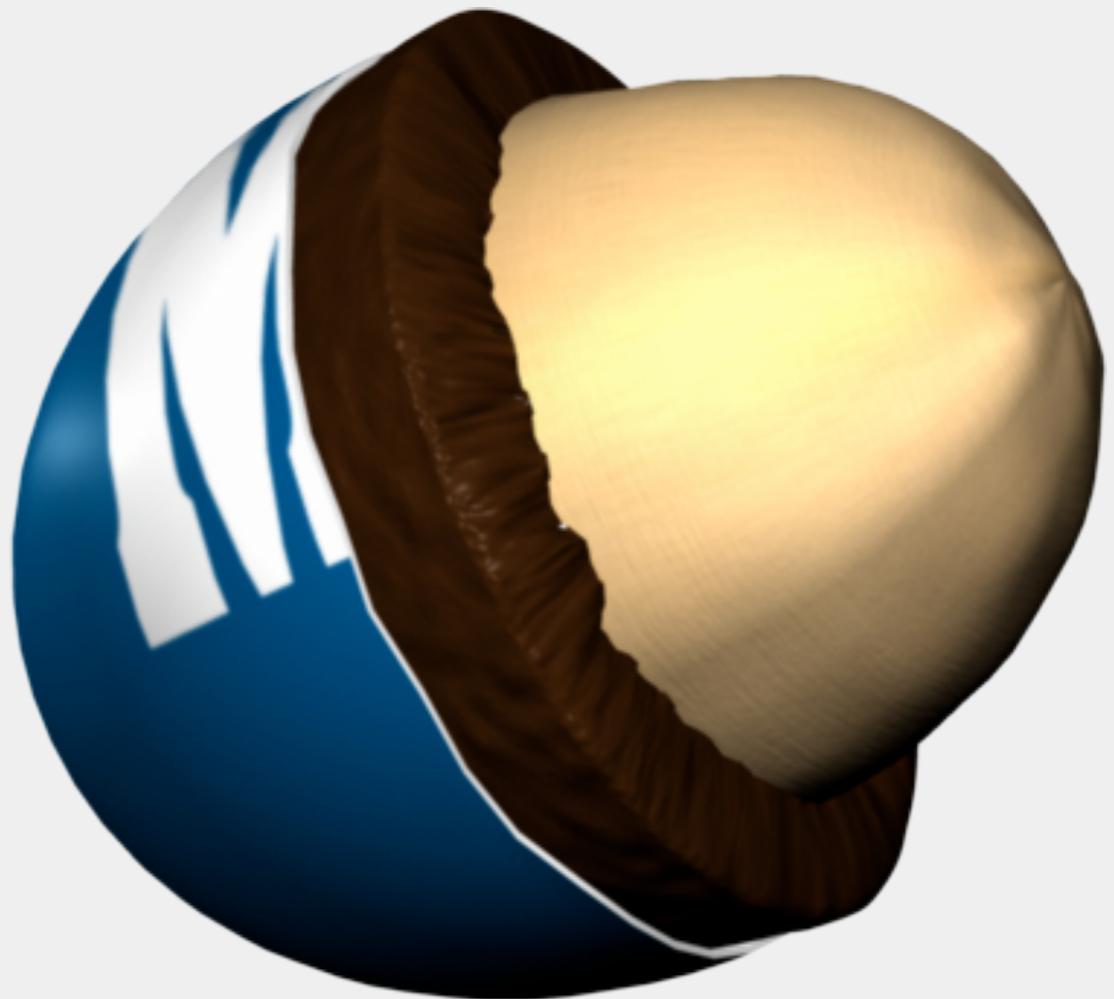
- some browsers only handle a certain level of CSS
- some companies turn off JavaScript



It can be beautiful
(and progressive)

The candy coating

- JavaScript can turn a website into an experience
- we can deliver our scripts *a la carte*

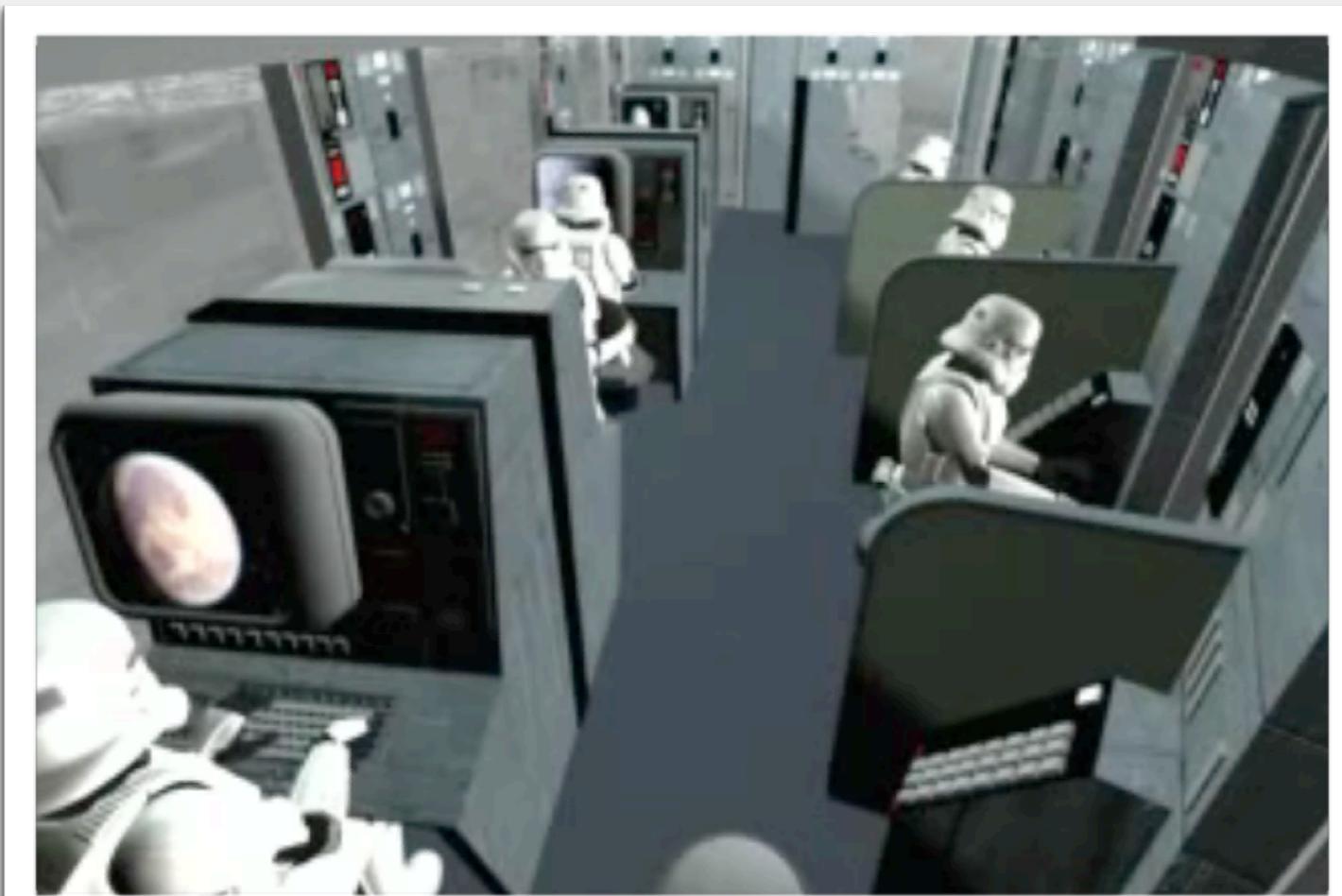


How do we do it?

Restraint & Planning

Wield
your power
wisely

A long time ago, in a cubicle far, far away...



DHTML (was awful)

Spaghetti code

(our HTML was spaghetti too)

Things are better now,
but we have new challenges

What can JavaScript do?

How should JavaScript be used?

Progressive Enhancement
helps us by reminding us
to focus on the content

Back to basics

XHTML + HTTP

Back to basics

solid foundation

PE Maxim:

All code needed
to understand
and use a site
should exist before
any scripts run

PE Maxim:

Period.

Consider lala.com

LALA.COM

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[discover](#)

[trade](#)

[buy](#)

[home](#) | [forums](#) | [help](#) | [signin](#)

Search

All

Reinvent Your iTunes & Digital Music - Play & Share Online

You can upload your music. Upload your iTunes and My Music folder to the Web.

Say "iPod". Designed to be iPod friendly, easily fill up your iPod from the Web (and any PC) with your favorite music.

The "S" word - share. Don't spend hours on P2P sites and worry about viruses. Safely share music and playlists.

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Featuring "Rich Man" by **Ghostland Observatory**
Buy Ghostland Observatory music

Most popular albums on lala

1-15 of 2065 >>



Icky Thump
The White Stripes



Boxer
The National



Ga Ga Ga Ga
Spoon



Back To Black
Amy Winehouse



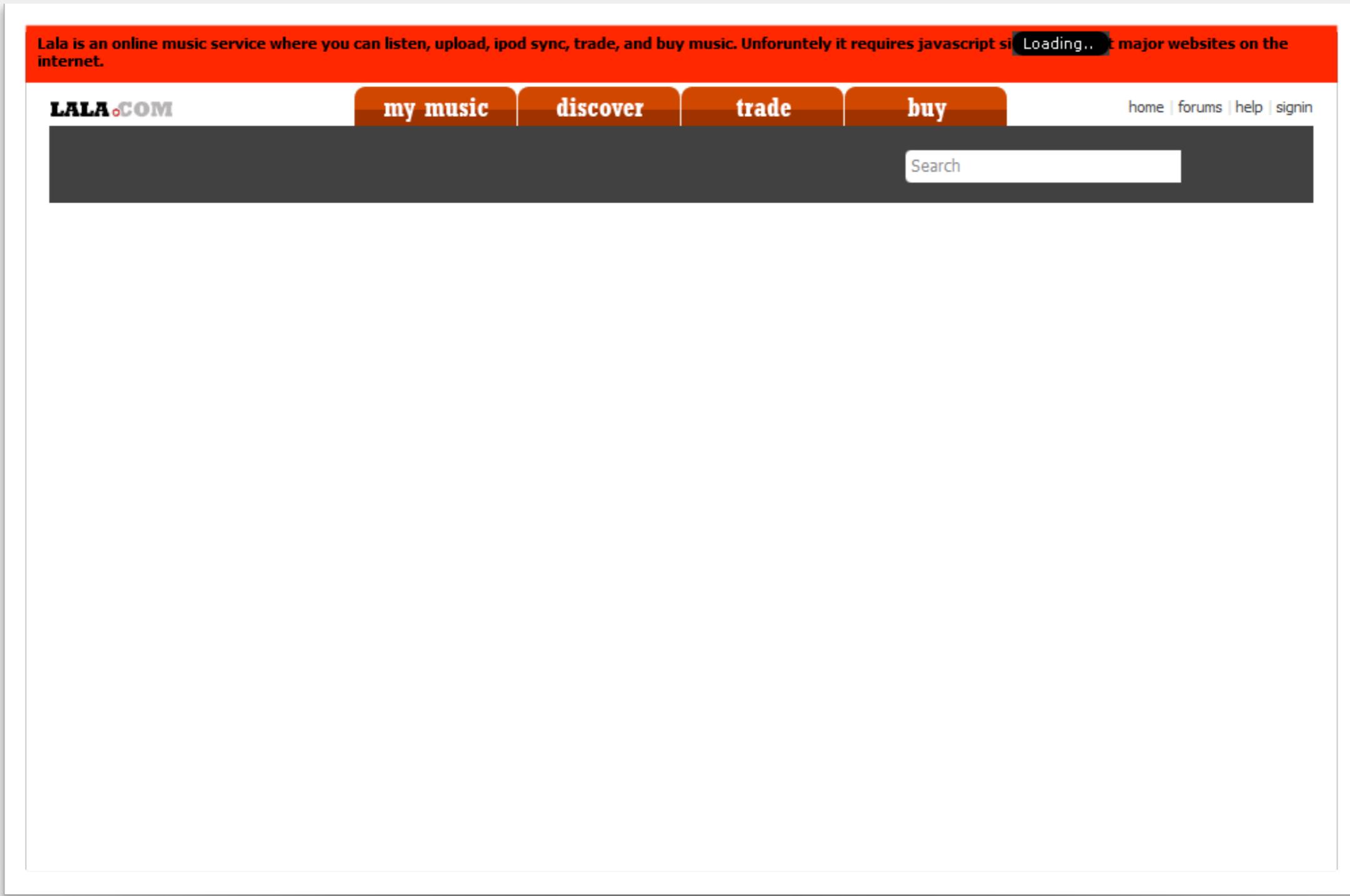
Our Love To Admire
Interpol

Just added playlists

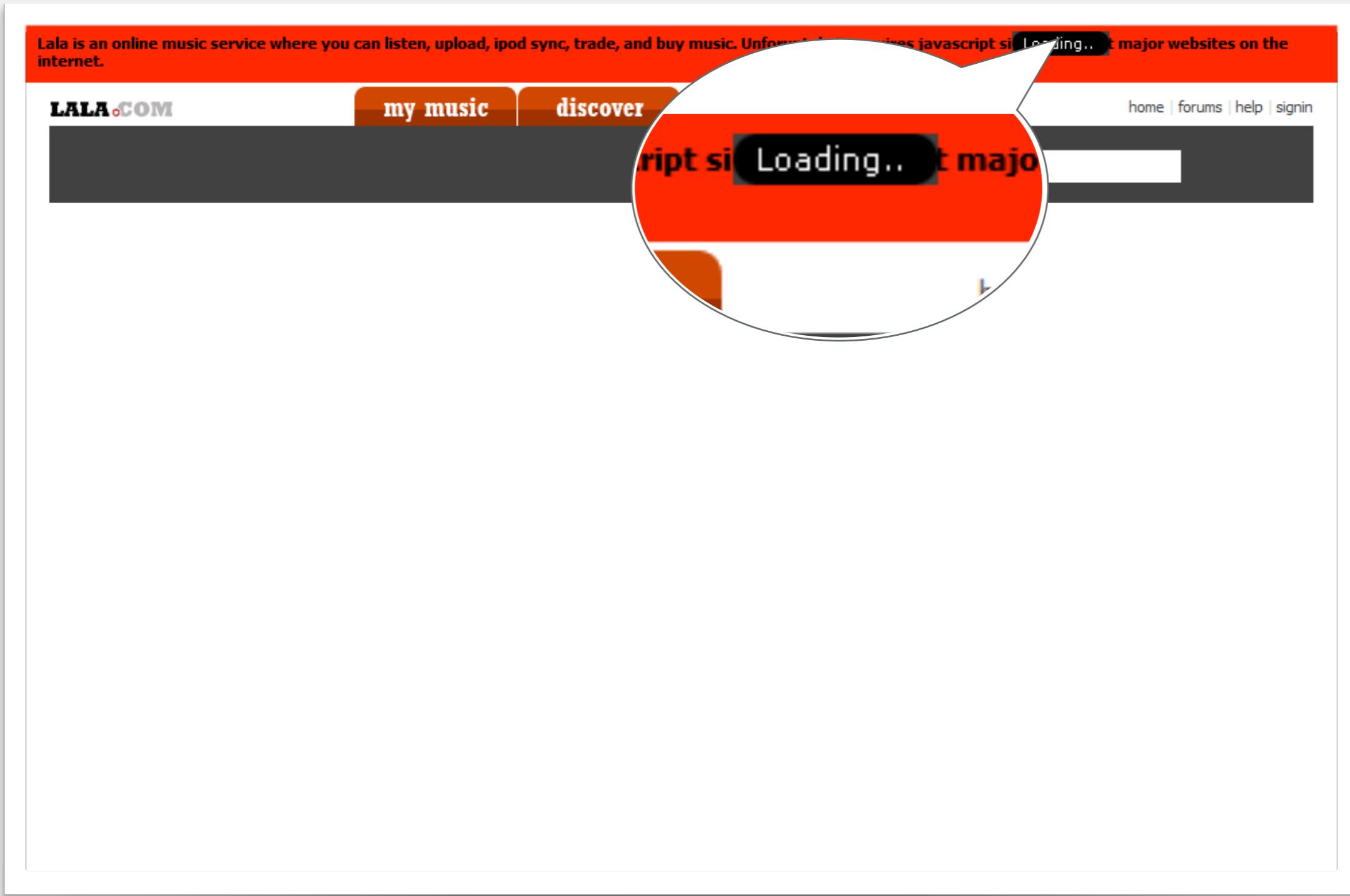
1-25 of 227 >>

- ▶ The Brainwaves From Manteno
- ▶ Triad
- ▶ Soul Sounds
- ▶ 1986
- ▶ 1988
- ▶ 1970
- ▶ Random Sh*t
- ▶ Lay Down Your Heavy Load
- ▶ yo
- ▶ 1965
- ▶ Songs I Want
- ▶ Girls
- ▶ 1978
- ▶ 1981
- ▶ 1966
- ▶ random musings
- ▶ Marqua
- ▶ The Greatest Ultimate Essential Definition
- ▶ African Diaspora

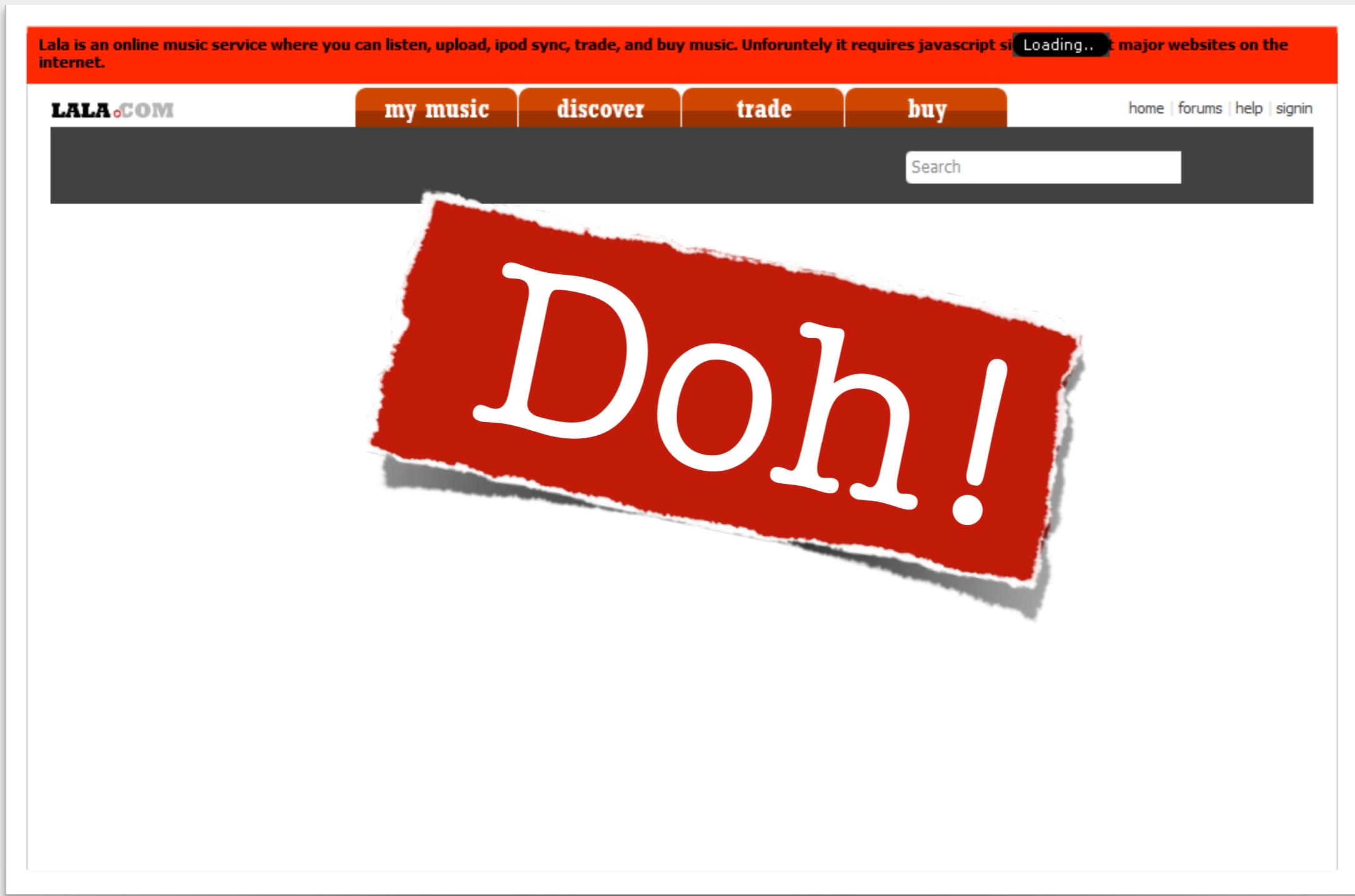
Without JavaScript



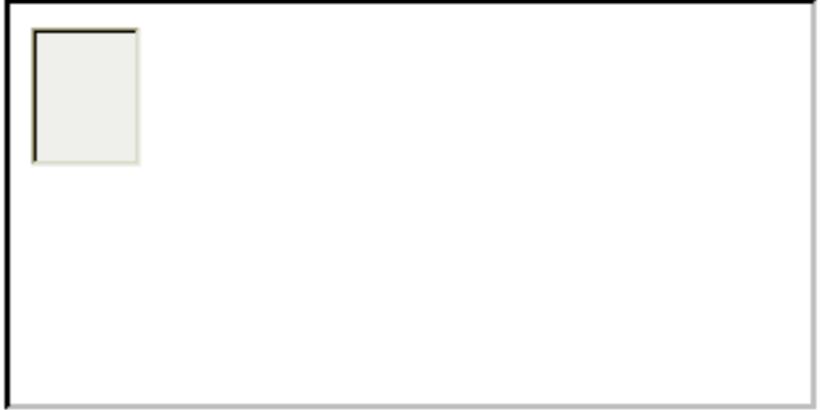
Without JavaScript



Without JavaScript



And looking at the markup...



Lala is an online music service where you can listen, upload, ipod sync, trade, and buy music. Unfortunately it requires javascript similar to most major websites on the internet.

LALA.COM

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[cart \(1\)](#)

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And looking at the markup...



What about search?

What about alternative devices?

Enter Unobtrusive JavaScript

(the cornerstone of Progressive
Enhancement with JavaScript)

Don't do this

```
<a href="javascript:someFunction();">some text</a>
```

or

```
<a href="javascript:void(null);"  
    onclick="someFunction();">some text</a>
```

or

```
<a href="#" onclick="someFunction();">some text</a>
```

An improvement, but still...

```
<a href="http://offsite.com"  
    onclick="newWin( this.href ); return false;">  
some text</a>
```

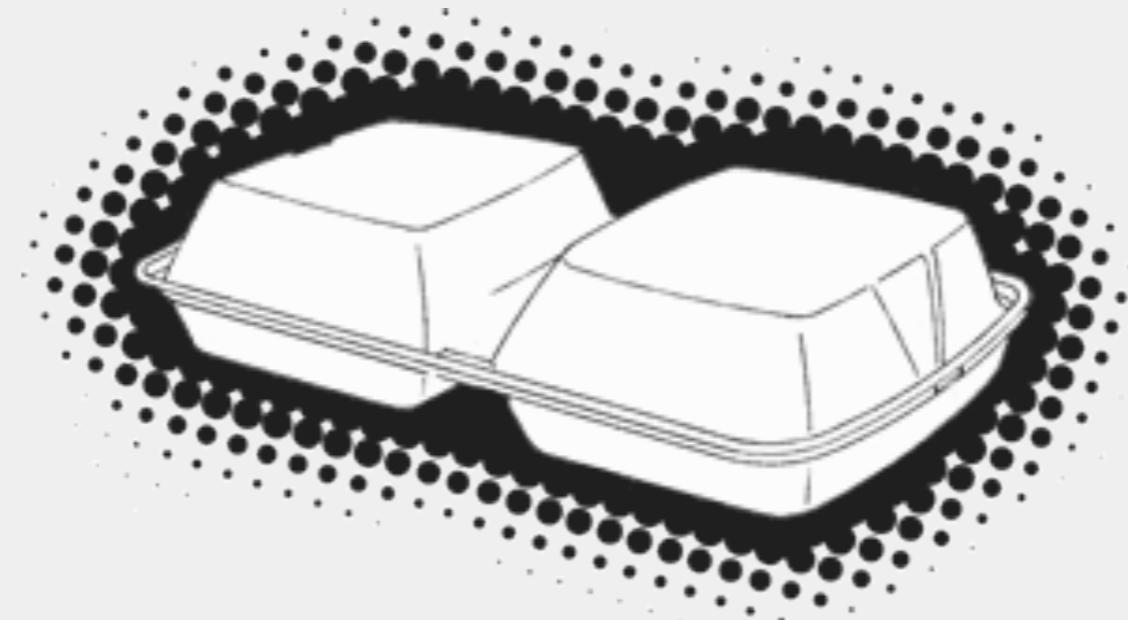
Getting warmer...

```
window.onload = handleExternalLinks;

function handleExternalLinks(){
  var server = document.location.hostname;
  var anchors = document.getElementsByTagName("a");
  var i, href;
  for( i=0; i < anchors.length; i++ ){
    href = anchors[i].href;
    if( href.indexOf("http://" + server) == -1 &&
        href.indexOf("https://" + server) == -1 ){
      // HREF is not a file on my server
      anchors[i].onclick = function(){
        newWin( this.href );
      };
    }
  }
}
```

You're hot

```
document.getElementsByTagName( 'body' )[0].onclick =  
  clickDelegator;  
  
function clickDelegator( e ){  
  e = ( e ) ? e : event;  
  var el = e.target || e.srcElement;  
  
  // external links  
  if( el.nodeName.toLowerCase() == 'a' &&  
    el.getAttribute( 'rel' ) == 'external' ){  
    newWin( el.href );  
  }  
}
```



Keep the hot side hot
and the cold side cold
(or getting some separation)
between your CSS and JS

Remember stuff like this?

```
<a href="foo.html"
  style="color:blue;"
  onmouseover="this.style.color='red'"
  onmouseout="this.style.color='blue'">Foo</a>
```

Remember stuff like this?

```
<a href="foo.html"
  style="color:blue;"
  onmouseover="this.style.color='red'"
  onmouseout="this.style.color='blue'">Foo</a>
```

Obviously, we should be doing this instead:

```
a, a:link, a:visited {
  color: blue;
}
a:hover {
  color: red;
}
```

CSS was
poorly understood
back then

but we know
better now

don't we?

Hmm...

```
for( i=0; i<objects.length; i++){  
    objects[i].style.display = 'none';  
}
```

Better

```
for( i=0; i<objects.length; i++){  
    objects[i].style.position = 'absolute';  
    objects[i].style.left      = '-999em';  
}
```

Separation

CSS:

```
.hidden {  
  position: absolute;  
  left: -999em;  
}
```

JavaScript:

```
for( i=0; i<objects.length; i++){  
  objects[i].addClassName( 'hidden' );  
}
```

Maintenance options

- external style rules added to master CSS file by hand
- external CSS file added to the document by hand
- external CSS file added to the document via script
- embedding CSS in the document via script

But keep in mind

you need to
avoid applying
script-related styles

until you know
your script can run
and it has
initialized properly

How do we do that?

- ➊ make your style rules specific:

```
.TabInterface-folder {  
    ...  
}
```

or

```
#TabInterface .tab {  
    ...  
}  
#TabInterface .tab.active {  
    ...  
}
```

How do we do that?

- turn “on” script-related rules at run-time:

```
<div id="main" class="tabbed">
```

becomes

```
<div id="main" class="tabbed-on">
```

How do we do that?

- turn “on” script-related rules at run-time:

	Default	Activated
add “-on” to the class	.tabbed	.tabbed-on
add an activation class	.auto-submit	.auto-submit.active
change the form of the class	.replace-me	.replaced

Become a detective

Look for methods

```
function someFunction(){  
  if( !document.getElementsByTagName ) return;  
  // code that uses document.getElementsByTagName()  
  ...  
}
```

Look for methods

```
function someFunction(){  
  if( !document.getElementsByTagName ||  
      !document.getElementById ) return;  
  /* code that uses document.getElementsByTagName()  
   and document.getElementById() */  
}
```

Look for elements

```
function someFunction(){  
  if( !document.getElementsByTagName ||  
      !document.getElementsByTagName( 'p' ) ) return;  
  /* code that uses document.getElementsByTagName()  
   and requires the presence of a P element */  
  ...  
}
```

Look for identified elements

```
function someFunction(){  
  if( !document.getElementById ||  
      !document.getElementById( 'content' ) ) return;  
  // code that requires the presence of #content  
  ...  
}
```

Look for objects

```
function someFunction(){  
  if( typeof( Prototype ) == 'undefined' ) return;  
  // code that uses Prototype  
  
  ...  
}
```

Look for object versions

```
function someFunction(){  
  if( typeof( Prototype ) == 'undefined' ||  
      parseFloat( Prototype.Version ) < 1.5 ) return;  
  // code that uses Prototype 1.5 or higher  
  ...  
}
```

Look before you leap

```
window.onload = function(){
  if( document.getElementsByTagName &&
    document.getElementById ){
    someFunction();
  }
};
```

Be progressive

- Start with the content, then work your way out
- Get unobtrusive
- Keep some distance between your styles & your scripts
- Put on your detective hat

Questions?