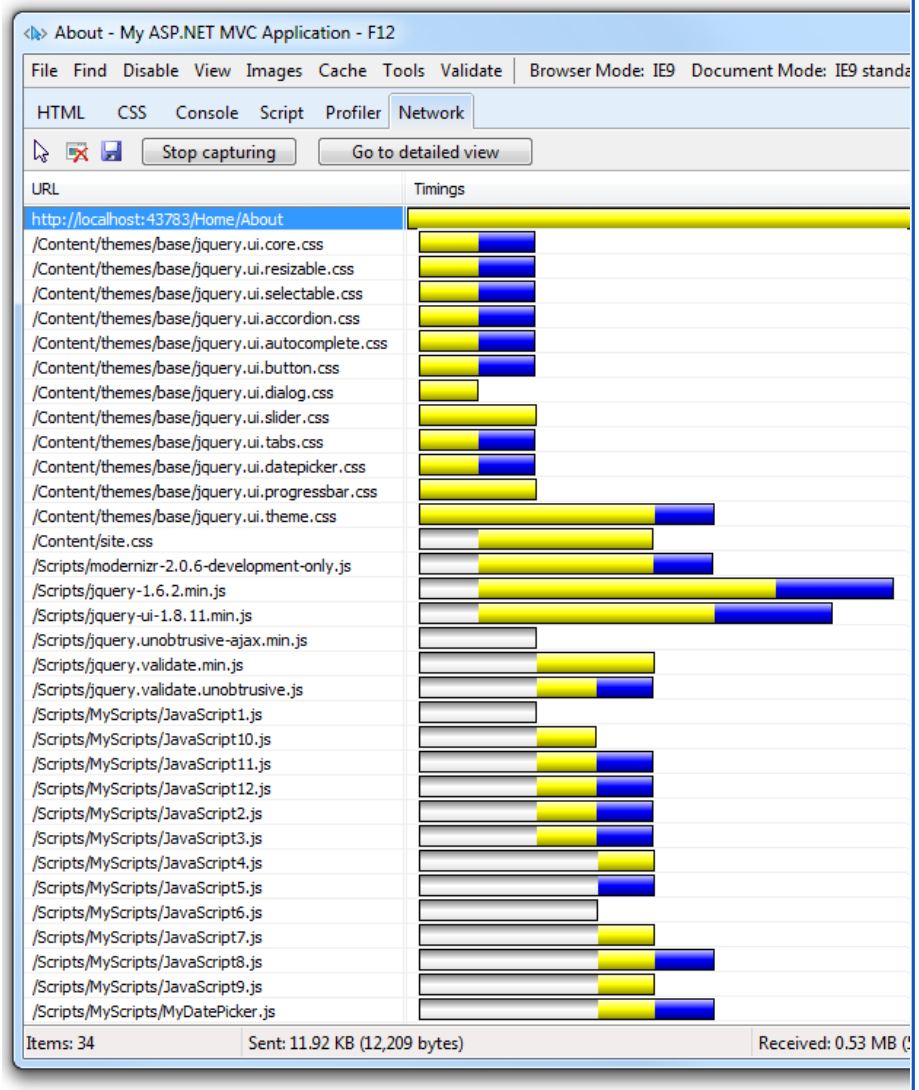
ASP.Net Bundles

What is Bundling?

- Bundling and minification are two techniques you can use in ASP.NET to improve request load time
- Bundling improves load time by reducing the number of requests to the server
- Minification improves load time by reducing the size of requested assets (CSS and JavaScript)

Why Bundtling?

- Most of the current major browsers limit the number of simultaneous connections per each hostname to six
- That means that while six requests are being processed, additional requests for assets on a host will be queued by the browser



Why Minification?

- Minification performs a variety of different code optimizations to scripts or css, such as removing unnecessary white space and comments and shortening variable names to one character

```
AddAltToImg = function (imageTagAndImageID, imageContext) {
    ///<signature>
    ///<summary> Adds an alt tab to the image
    // </summary>
    //<param name="imgElement" type="String">The image selector.</param>
    //<param name="ContextForImage" type="String">The image context.</param>
    ///</signature>
    var imageElement = $(imageTagAndImageID, imageContext);
    imageElement.attr('alt', imageElement.attr('id').replace(/ID/, ''));
}
```

- After minification

```
AddAltToImg = function (n, t) { var i = $(n, t); i.attr("alt",
i.attr("id").replace(/ID/, "")) }
```

Impact of Bundling and Minification

	Using B/M	Without B/M	Change
File Requests	9	34	256%
KB Sent	3.26	11.92	266%
KB Received	388.51	530	36%
Load Time	510 MS	780 MS	53%

Controlling Bundling and Minification

- Bundling and minification is enabled or disabled by setting the value of the debug attribute in the compilation Element in the Web.config file

```
<system.web>
  <compilation debug="false" />
  <!-- Lines removed for clarity. -->
</system.web>
```

Using a CDN

- A content delivery network or content distribution network (CDN) is a large distributed system of proxy servers deployed in multiple data centers via the Internet
- The goal of a CDN is to serve content to end-users with high availability and high performance
- Using a CDN and Bundtling:

```
public static void RegisterBundles(BundleCollection bundles) {
    bundles.UseCdn = true; //enable CDN support

    //add link to jquery on the CDN
    var jqueryCdnPath = "http://ajax.aspnetcdn.com/ajax/jQuery/jquery-
1.7.1.min.js";
    bundles.Add(new ScriptBundle("~/bundles/jquery", jqueryCdnPath).Include(
"~/Scripts/jquery-{version}.js"));
    // Code removed for clarity.
}
```

Fallback When CDN Load Fails

```
<script src="http://ajax.aspnetcdn.com/ajax/jquery/jquery-1.9.0.min.js">
</script>

<script>
// Fallback to loading jQuery from a local path if the CDN is unavailable
(window.jQuery || document.write('<script src="/scripts/jquery-
1.9.0.min.js"><\/script>'));
</script>
```

References & Links

- Pro ASP.Net MVC 5 chapter 26

- Bundling and Minification by Rick Anderson
  http://www.asp.net/mvc/overview/performance/bundling-and-minification