Microsoft® Official Course

Module09

Building Responsive Pages in ASP.NET MVC 4 Web Applications

Module Overview

- Using AJAX and Partial Page Updates
- Implementing a Caching Strategy

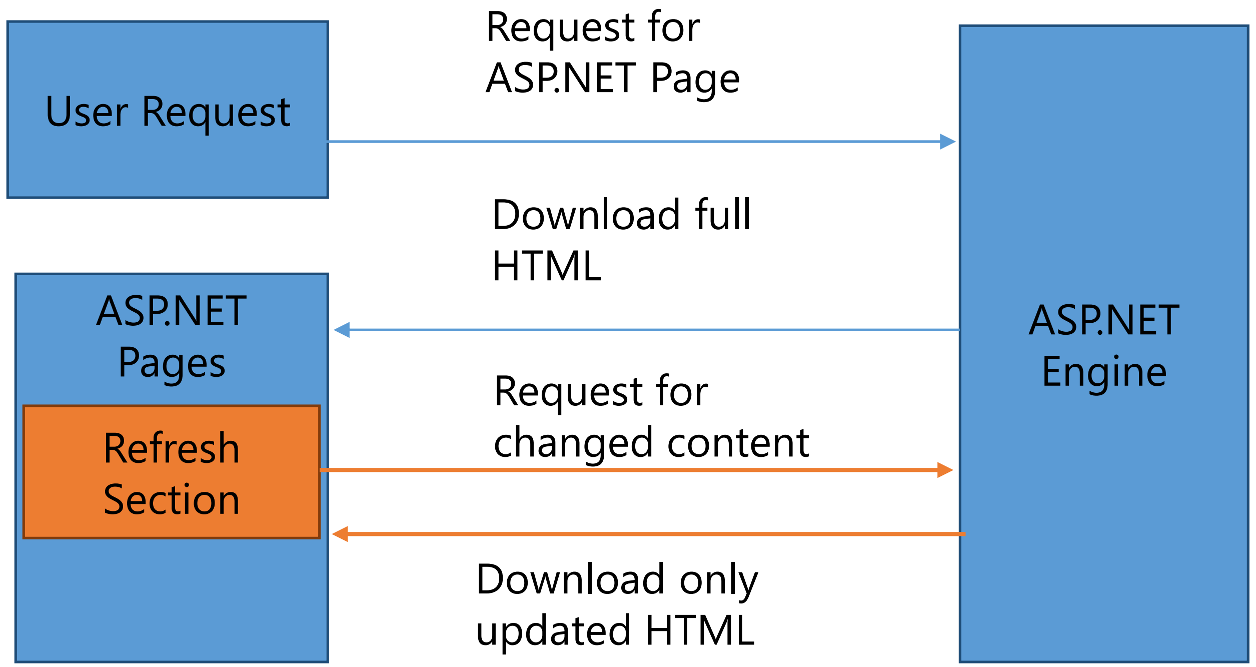
Lesson 1: Using AJAX and Partial Page Updates

- Why Use Partial Page Updates?
- Using AJAX in an MVC 4 Web Application
- The Ajax.ActionLink Helper

Why Use Partial Page Updates?

Partial page updates:

- Allow updates of individual sections of a webpage, during postback
- Increase the responsiveness of a web application



Using AJAX in an MVC 4 Web Application

To implement AJAX in your web application:

1. Create your web application without AJAX
2. Add or modify views, to render only the specific sections that you want to update on the webpage
3. Update the **ViewController** class to return the **PartialView** class

```
[HttpGet]
public PartialViewResult HelloWorld()
{
   ViewBag.Message = "Hello World";
   return PartialView();
}
```

The Ajax.ActionLink Helper

The **Ajax.ActionLink** helper:

- Helps obtain updated HTML information from the view
- Helps replace content in a specific location

```
@Ajax.ActionLink(
   "Refresh",
   "HelloWorld",
   new AjaxOptions{
      HttpMethod = "POST",
      UpdateTargetId = "divMessage",
      InsertionMode = InsertionMode.Replace
   }
)
```

Lesson 2: Implementing a Caching Strategy

- Why Use Caching?
- The Output Cache
- The Data Cache
- The HTTP Cache
- Preventing Caching

Why Use Caching?

Caching:

- Helps improve the performance of a web application by reducing the time needed to process a webpage
- Helps increase the scalability of a web application by reducing the workload on the server

The Output Cache

Benefits of caching in the output cache:

- The **OutputCache** attribute directs the rendering engine to the cache that contains results from the previous rendering process

```
[OutputCache(Duration = 60)]
```

- You can add the **VaryByParam** property to the **OutputCache** attribute to store a single copy of the most recent data in the cache

```
[OutputCache(Duration = 60, VaryByParam="ID")]
```

- You can add the **VaryByCustom** property to the **OutputCache** attribute to store multiple versions of the rendered content in the cache

```
[OutputCache(Duration = 60, VaryByCustom="browser")]
```

The Data Cache

- You can use the **MemoryCache** object to store data in the memory

```
System.Data.DataTable dtCustomer =
System.Runtime.Caching.MemoryCache.Default
.AddOrGetExisting("CustomerData",this.GetCustomerData(),
System.DateTime.Now.AddHours(1));
```

Key

- ❑ The unique identifier of the object.

Value

- ❑ The object that should be stored in the memory cache.

AbsoluteExpiration.

- ❑ The time when the cache should expire.

The HTTP Cache

Browser Cache:

- Includes a copy of the web application stored in local computer drive
- Allows only one user to access data, at a time

Proxy Cache:

- Includes a copy of the web application stored on a centralized server
- Allows multiple users to access data, at a time

Preventing Caching

- You can set the Cache-Control header value to **HttpCachePolicy.SetCacheability** to control the caching performance:

```
Response.Cache.SetCacheability(HttpCacheability.Private);
```

- You can set the Cache-Control header value to **NoCache** to prevent the caching performance:

```
Response.Cache.SetCacheability(HttpCacheability.NoCache);
```