Web Page Caching and Refresh Handling (Web Page Revisit Cache Handling)				
Client			HTTP Server	**EventHelix.com/EventStudio 2.5**
Web Browser			Web Server	
Port 1368	Port 1367	Port 1366	Port 80	10-Oct-05 04:42 (Page 1)

This Tutorial Sequence Diagram was generated with EventStudio System Designer 2.5 (http://www.EventHelix.com/EventStudio).

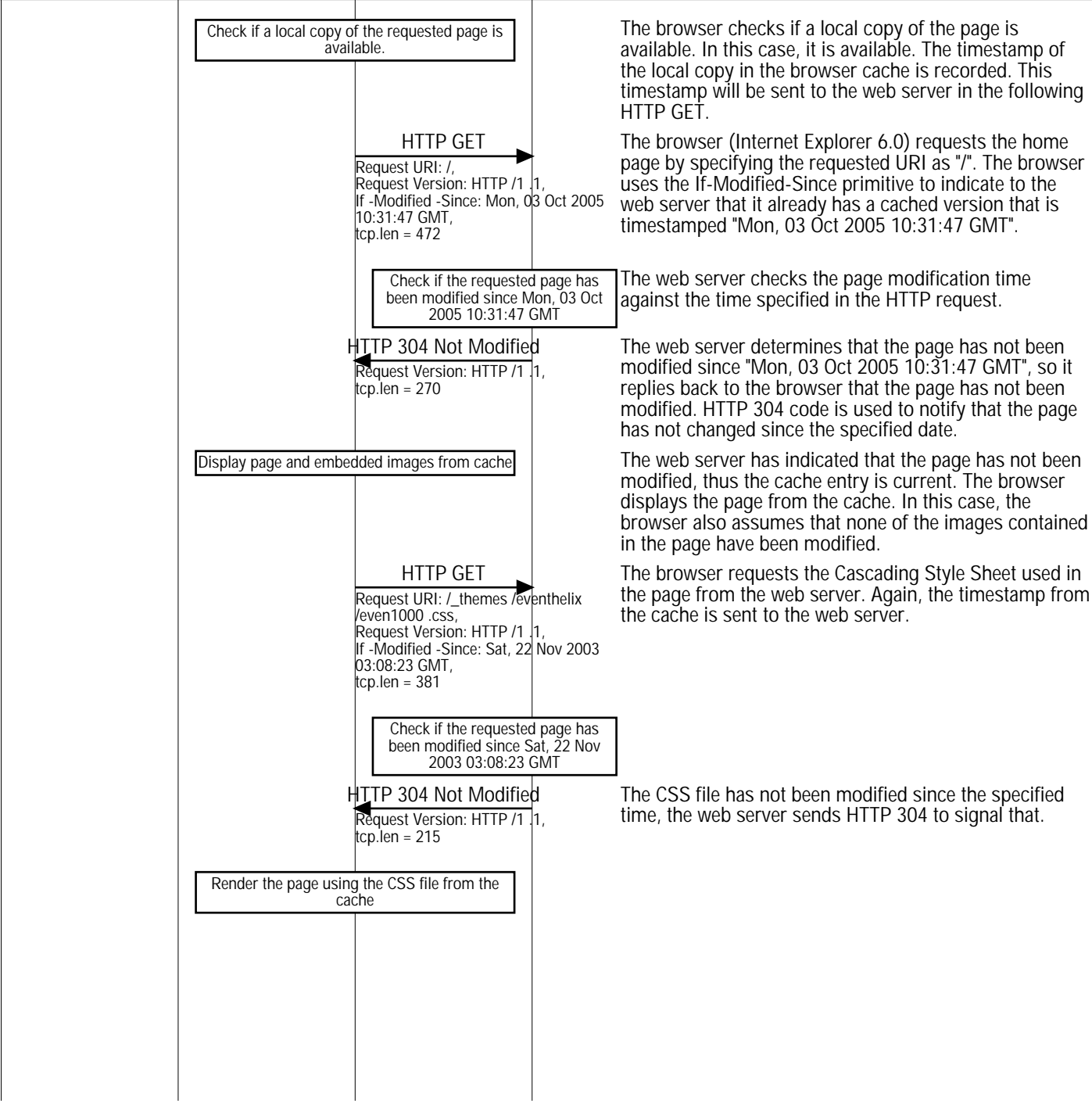**LEG: Web Cache handling when the user revisits home page**

This sequence diagram tutorial describes the web caching feature on the web browser side.
HTTP primitives that facilitate the implementation of web browser level caching are shown using a live example.

Two scenarios are covered:
- The user revisits the EventHelix.com home page.
- The user issues a refresh command for the EventHelix.com home page.

Scenario: The user revisits the EventHelix.com home page.

Check if a local copy of the requested page is available.

The browser checks if a local copy of the page is available. In this case, it is available. The timestamp of the local copy in the browser cache is recorded. This timestamp will be sent to the web server in the following HTTP GET.

HTTP GET

Request URI: /,
Request Version: HTTP /1 .1,
If -Modified -Since: Mon, 03 Oct 2005 10:31:47 GMT,
tcp.len = 472

The browser (Internet Explorer 6.0) requests the home page by specifying the requested URI as "/". The browser uses the If-Modified-Since primitive to indicate to the web server that it already has a cached version that is timestamped "Mon, 03 Oct 2005 10:31:47 GMT".

Check if the requested page has been modified since Mon, 03 Oct 2005 10:31:47 GMT

The web server checks the page modification time against the time specified in the HTTP request.

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 270

The web server determines that the page has not been modified since "Mon, 03 Oct 2005 10:31:47 GMT", so it replies back to the browser that the page has not been modified. HTTP 304 code is used to notify that the page has not changed since the specified date.

Display page and embedded images from cache

The web server has indicated that the page has not been modified, thus the cache entry is current. The browser displays the page from the cache. In this case, the browser also assumes that none of the images contained in the page have been modified.

HTTP GET

Request URI: /_themes /eventhelix /even1000 .css,
Request Version: HTTP /1 .1,
If -Modified -Since: Sat, 22 Nov 2003 03:08:23 GMT,
tcp.len = 381

The browser requests the Cascading Style Sheet used in the page from the web server. Again, the timestamp from the cache is sent to the web server.

Check if the requested page has been modified since Sat, 22 Nov 2003 03:08:23 GMT

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215

The CSS file has not been modified since the specified time, the web server sends HTTP 304 to signal that.

Render the page using the CSS file from the cache

Web Page Caching and Refresh Handling (Web Page Refresh Cache Handling)				
Client			HTTP Server	**EventHelix.com/EventStudio 2.5**
Web Browser			Web Server	
Port 1368	Port 1367	Port 1366	Port 80	10-Oct-05 04:42 (Page 2)

This Tutorial Sequence Diagram was generated with EventStudio System Designer 2.5 (http://www.EventHelix.com/EventStudio).

Scenario: The user issues a refresh command for the EventHelix.com home page.

This case differs from a revisit as the web browser will issue an HTTP GET for each event element contained in the page.

Also note that the browser uses two client end ports to speed up the page refresh. Web page elements are being concurrently requested via two different ports.

HTTP GET

Request URI: /,
Request Version: HTTP /1 .1,
If -Modified -Since: Mon, 03 Oct 2005 10:31:47 GMT,
tcp.len = 311

Request the page from the web server.

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
http.date = Sun, 09 Oct 2005 11:20:35 GMT,
tcp.len = 270

The web server indicates that the page has not been modified since the specified time.

HTTP GET

Request URI: /_themes /eventhelix /even1000 .css,
Request Version: HTTP /1 .1,
If -Modified -Since: Sat, 22 Nov 2003 03:08:23 GMT,
tcp.len = 381

HTTP GET

Request URI: /EventStudio /images /hg .gif,
Request Version: HTTP /1 .1,
If -Modified -Since: Thu, 17 Feb 2005 13:07:11 GMT,
tcp.len = 375

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215

HTTP GET

Request URI: /EventStudio / _borders /event _helix .jpg,
Request Version: HTTP /1 .1,
If -Modified -Since: Sun, 18 Apr 2004 00:03:36 GMT,
tcp.len = 386

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215

HTTP GET

Request URI: /EventStudio /images /w2gh .gif,
Request Version: HTTP /1 .1,
If -Modified -Since: Sat, 19 Feb 2005 12:38:05 GMT,
tcp.len = 377

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215

HTTP GET

Request URI: /EventStudio /eventstudio _icon .gif,
Request Version: HTTP /1 .1,
If -Modified -Since: Wed, 25 Jun 2003 01:41:04 GMT,
tcp.len = 382

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215

HTTP GET

Request URI: /EventStudio /images /system _design _screen _small .gif,
Request Version: HTTP /1 .1,
If -Modified -Since: Sat, 13 Nov 2004 14:53:59 GMT,
tcp.len = 398

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215

HTTP GET

Request URI: /EventStudio /images /sequence _diagram _small
.jpg,
Request Version: HTTP /1 .1,
If -Modified -Since: Sat, 16 Jul 2005 16:36:28 GMT,
tcp.len = 395

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 214

HTTP GET

Request URI: /EventStudio /images /collaboration _diagram _small .jpg,
Request Version: HTTP /1 .1,
If -Modified -Since: Sat, 16 Jul 2005 16:34:12 GMT,
tcp.len = 400

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215

HTTP GET

Request URI: /images /photo .gif,
Request Version: HTTP /1 .1,
If -Modified -Since: Thu, 06 Jan 2005 02:37:44 GMT,
tcp.len = 365

HTTP GET

Request URI: /RealtimeMantra /Telecom /mobile .gif,
Request Version: HTTP /1 .1,
If -Modified -Since: Sat, 18 Dec 2004 11:50:13 GMT,
tcp.len = 383

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 214

HTTP GET

Request URI: /RealtimeMantra /desktop .gif,
Request Version: HTTP /1 .1,
If -Modified -Since: Sun, 02 Jan 2005 22:17:00 GMT,
tcp.len = 376

HTTP GET

Request URI: /images /join .gif,
Request Version: HTTP /1 .1,
If -Modified -Since: Fri, 25 Oct 2002 11:19:21 GMT,
tcp.len = 364

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 214

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215

HTTP GET

Request URI: /_themes /eventhelix /bullet .gif,
Request Version: HTTP /1 .1,
If -Modified -Since: Sun, 02 Nov 2003 15:57:13 GMT,
tcp.len = 379

HTTP 304 Not Modified

Request Version: HTTP /1 .1,
tcp.len = 215