Configuring and Testing Caching and Other Performance Options in Microsoft® SharePoint® Technologies

Module Overview

- The Out of the Box Experience
- Resources and Tools for Testing
- IIS Compression
- Output Caching
- BLOB Caching
- Object Caching
- Delayed Downloading of Core.js

The Out of the Box Experience
SharePoint Configuration Options

- **Most caching options are turned off**
- **Anonymous access is disabled**
- **IIS Compression is turned on**

  This is new in SharePoint 2007
- **The User Interface is “Light”**

  Page Payload sizes are relatively small

Resources and Tools

- **LogParser: Analyzing user load in the real-world**
- **Creating a Test Environment: SharePoint Test Data Population Tool (sptdatapop)**
- **Performance Testing: Two different tools, two different purposes**
  - Visual Studio Team Test: Lets you measure the throughput available in your site.
  - Fiddler: Lets you examine individual requests to see what is being downloaded on each request and how large each item is.
- **Tweak settings based on what you see in VSTT and Fiddler**
- **Test again with VS.NET to check for improvement**

DEMO

Establishing the "Baseline" Performance

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IIS Compression

- **By default, when you install MOSS 2007 / WSS 3.0 IIS Compression is turned on**

  Hit the site and look in %WINDIR%\IIS Temporary Compressed Files

- **Compression is turned on primarily for static files**

  Static files: Htm, html, txt, js, css, htc;

  Dynamic files: asp, exe, axd

- **You may want to also compress aspx files**

  CSCRIPT.EXE ADSUTIL.VBS SET W3Svc/Filters/Compression/DEFLATE/HcScriptFileExtensions "asp" “exe" "axd" “aspx"

  CSCRIPT.EXE ADSUTIL.VBS SET W3Svc/Filters/Compression/GZIP/HcScriptFileExtensions "asp" “exe" “axd" “aspx“

- **NOTE: No point in compressing files that are already compressed, like .jpg**

IIS Compression Considerations

- **Consider tuning the compression level**

  Lower values make bigger files but put less stress on system resources

  Out of the box it is set to 0 for dynamic files (10 for static files)

  - Can go as high as 10
  - 9 was often used in WSS 2.0 / SPS 2003
  - CSCRIPT.EXE ADSUTIL.VBS SET W3Svc/Filters/Compression/GZIP/HcDynamicCompressionLevel "9"
  - CSCRIPT.EXE ADSUTIL.VBS SET W3Svc/Filters/Compression/DEFLATE/HcDynamicCompressionLevel "9"

Output Caching

- **Implemented in MOSS as Site Collection Output Cache**
- **Control it at the site collection level**

  Exceptions allowed for layout pages and subsites
- **Caching profiles determine cache characteristics**

  You can use different profiles for anonymous and authenticated users

  Out of box includes four profiles that fit most scenarios

Output Cache Considerations

- **What if I don't want the whole page to be exactly the same every time**

  Post-Cache Substitution controls, like login

- **Default caching behavior for authenticated users is to cache for Reader only**

  Check Allow writers to view cached content in profile to change

- **Use the cache debug statements**

  Verify it is working first!

  It's a checkbox when you configure Site Collection Output Cache

Anonymous vs. Authenticated Users

- **The authentication of users can impact what is possible with caching**

  Anonymous users are easiest because they all see the same thing

  Authenticated users can use things like loyalty programs but still use cached content too

  The challenge with authenticated users is to minimize variations of groups and rights

  Design the site hierarchy accordingly if possible

  - Put non-anonymous content in subsite(s)

DEMO

Enabling & Testing Output Cache

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Blob Cache

- **Blob Cache puts SharePoint items on disk**
- **Also stamps a cacheability value on items in the blob cache**
- **Turned off by default; must edit web.config to change**
- **Parameters:**

  location: the directory where items are stored

  path: a regex expression of the types of files that should be blob cached

  maxSize: the size in GB that the cache is allowed to use

  max-age: the amount of time in seconds that items should be cached on the client

  enabled: set to true to enable the blob cache

Blob Cache Considerations

- **Use it! Doesn't have an Admin UI, but don't worry**
- **Add items used in your site to it**

  HTC is a good example – it is used but not in the default list
- **Only works on items stored in a SharePoint list**
- **Some lists don't work out of the box for anonymous users**

  Master Page Gallery

  Style Library

DEMO

Enabling BLOB Caching

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Object Cache

- **Finally, a cache enabled by default**
- **Used to store frequently accessed items**
  - Site navigation structure
  - Field content of a library or list item
  - Content by Query web part data
- **Configured to use 100MB by default**
- **Use Object Cache UI to flush Object Cache as well as disk-based cache (which really means the blob cache)**

Object Cache Considerations

- **Use caution when adjusting memory allocated to Object Cache**

  Monitor the SharePoint Publishing Cache… Publishing cache hit ratio for your site collection

  - Target hitting 90% plus
  - If below that number then increase amount of memory allocated to Object Cache

  All caches share same object space in process

  - Means no more than 2GB max on x32 windows
  - Includes SharePoint DLLs and modules as well
  - x64 can help here if you are memory constrained

Delay Downloading core.js

- **Core.js is the biggest of the jscript files in WSS 3.0 / MOSS 2007**

  257k on disk, 54k compressed

- **Not required at load time in most anonymous user scenarios**
- **Blog by Product Group describing how to delay loading it**

  http://blogs.msdn.com/ecm/archive/2007/02/21/building-a-new-page-layout-which-does-not-reference-core-js-but-downloads-it-while-the-page-is-being-viewed-thereby-optimizing-response-time.aspx

Delay Downloading

- **Create custom layout page that doesn't use core.js**
- **Add this tag: <SharePointWebControls:ScriptLink runat="server"/>**

  Means unless core.js is referenced, don't use it
- **Create custom control to check for authenticated users**

  ```
  if (HttpContext.Current.Request.IsAuthenticated)
  Microsoft.SharePoint.WebControls.ScriptLink.RegisterCore(this.Page, true);
  ```
- **Put control in the GAC, mark as safe in web.config and add to layout page**

Delay Downloading (continued)

- **Add an IFRAME to the layout page; contents of the IFRAME page look like this:**

```
<body>
<SharePoint:ScriptLink name="core.js" runat="server" />
<script language="javascript">
 DisableRefreshOnFocus();
</script>
</body>
```

- **Publish, base Home page on this layout, and test**
- **First time anonymous user should not see core.js in page source, but it should end up in browser cache**

Delay Downloading core.js Considerations

- Site Master Page and the System Master Page must be different; otherwise all pages in _layouts would not work right
- Only works for anonymous users; authenticated users always need it at load time for things like Site Actions menu
- Make sure master page doesn’t have controls that require core.js at load time to work
- Make sure master page doesn’t have any ScriptLink controls that load or reference core.js

DEMO

Testing Performance After Caching Configurations

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Module Summary

- **Use the tools to get a baseline and measure improvement**
- **Use anonymous or a small number of authenticated roles**
- **Use output cache, blob cache and object cache**

  Know the considerations for each one and measure results
- **Delay downloading core.js if you need quicker page display**