

“Caching-In” for SharePoint Performance Admin - 400

Sean McDonough
Idera

Welcome to SharePoint Saturday—The Conference

Thank you for being a part of the first SharePoint Saturday conference

- Please turn off all electronic devices or set them to vibrate.
- If you must take a phone call, please do so in the hall so as not to disturb others.
- Open wireless access is available at SSID: SPSTC2011
- Feel free to “tweet and blog” during the session
- Thanks to our Diamond and Platinum Sponsors:



Caching-In for SharePoint Performance



Sean McDonough
Product Manager, SharePoint Products
Idera

Session Overview

- Caching 101
- Understanding each of SharePoint's platform caching options
- How to leverage and control caching
- Scenarios quiz
- Q & A

Why I care about caching

okay ...

Why I



caching

okay ...

Why I



catching

Formerly the architect for a
Fortune 25 company's publicly
facing SharePoint presence

okay ...

Why I



First company of this
size using MOSS 2007
for Internet presence



Formerly the architect for a
Fortune 25 company's publicly
facing SharePoint presence

okay ...

Why I



caching

Formerly the architect for a Fortune 25 company's publicly facing SharePoint presence

Highly trafficked environment with about 75,000 page views per hour (peak) in 2009

okay ...

Why I



caching

Formerly the architect for a Fortune 25 company's publicly facing SharePoint presence

Highly trafficked environment with about 75,000 page views per hour (peak) in 2009

Averaging (at peak) 1,000 requests/second into IIS

with about 75,000 page views
per hour (peak) in 2009

ak) 1,000 requests/second into IIS



Supported initially with just 2 web
front ends (WFEs). Eventually
moved to 4 WFES for growth.

... and finally

... and finally



I'm sick AND tired
of hearing some
people complain that
"SharePoint doesn't scale"!!!

So, what is caching?

Webster's
New World[™]
Dictionary



Third College Edition

cacao butter COCOA BUTTER

cac-cia-to|re (kā'chə tōr'ē) *adj.* [It, lit., hunter < pp. of *cacciare*, to hunt, chase < VL **captiare*, to CATCH] cooked in a casserole with olive oil and tomatoes, onions, spices, wine, etc. [chicken *cacciatore*]

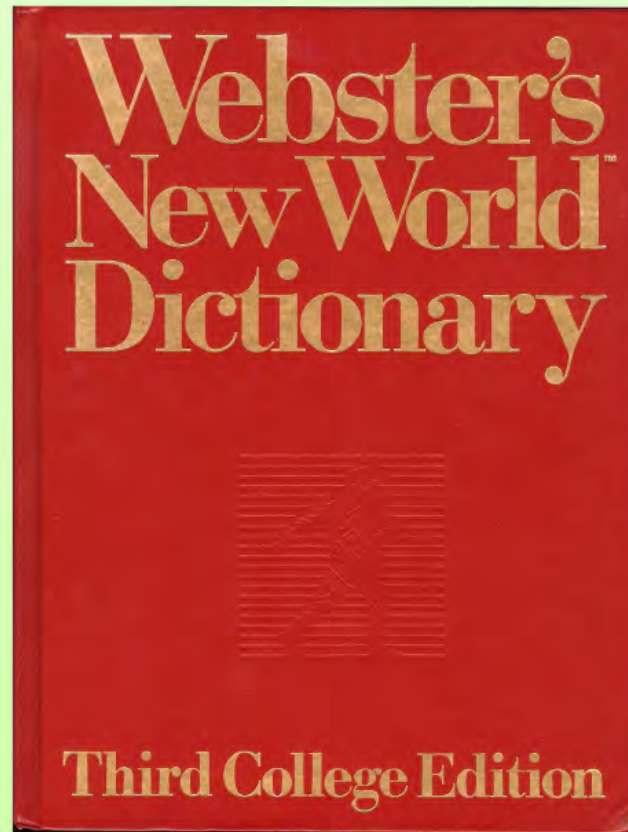
cach|a-lot (kash'ə lät', -lō') *n.* [Fr < Sp *cachalote* < colloq. Port *cachola*, head] SPERM WHALE

cache (kash) *n.* [Fr < *acher*, conceal < VL **coacticare*, store up, collect, compress < L *coactare*, constrain < *coactus*, pp. of *cogere*, to collect: see COGENT] 1 a place in which stores of food, supplies, etc. are hidden, as by explorers or trappers 2 a safe place for hiding or storing things 3 anything stored or hidden in such a place —*vt.* **cached, cach'ing** to hide or store in a cache —**SYN.** HIDE¹

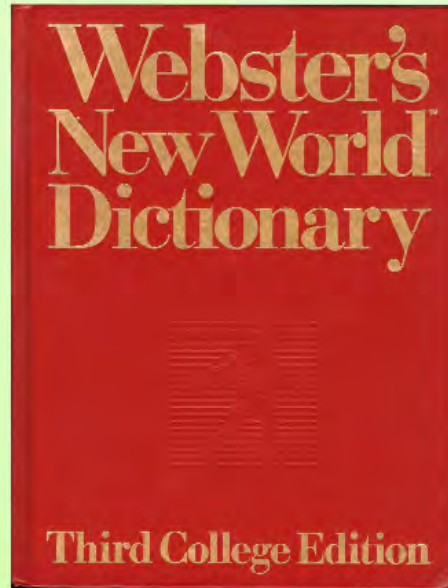
cache-pot (kash'pät, -pō') *n.* [Fr < *acher*, to hide (see prec.) + *pot*, POT¹] a decorative pot, jar, etc., used esp. for holding potted house plants Also **cache pot**

cache-sexe (kash'seks') *n.* [Fr < *acher*, to hide (see CACHE) + *sexe*, sex] a small cloth or band worn, as by an otherwise nude dancer, to conceal the genitals

ca-chet (ka shā', kash'ā) *n.* [Fr < *acher*: see CACHE] 1 a seal or stamp on an official letter or document: see also LETTRE DE CACHET 2 any sign of official approval 3 a) a mark or sign showing something is genuine, authentic, or of superior quality b) distinctive



Ok, so this is the dictionary
I took to college ... AND
that was over 20 years ago.



Ok, so this is the dictionary
I took to college ... AND
that was over 20 years ago.

Clearly a more up-to-date definition is needed

Cache:

what is it?

Cache:
what is it?

buffer

Web Part
caching

Cache: what is it?

buffer

Office viewing service cache

in-memory cache

virtual memory

ICP

Web Part
caching

Cache:
what is it?

post-cache substitution

buffer

CARP

Office viewing service cache

disk-based caching

in-memory cache

virtual memory

ICP

page output cache

Web Part
caching

post-cache substitution

Cache: what is it?

HTCP

browser cache

buffer

CARP

Office viewing service cache

cacheability headers

object cache

BLOB cache

fragment caching

Cache:

what is it?



A temporary storage area where frequently accessed data can be stored for rapid access



Option 1: Place data on a faster medium





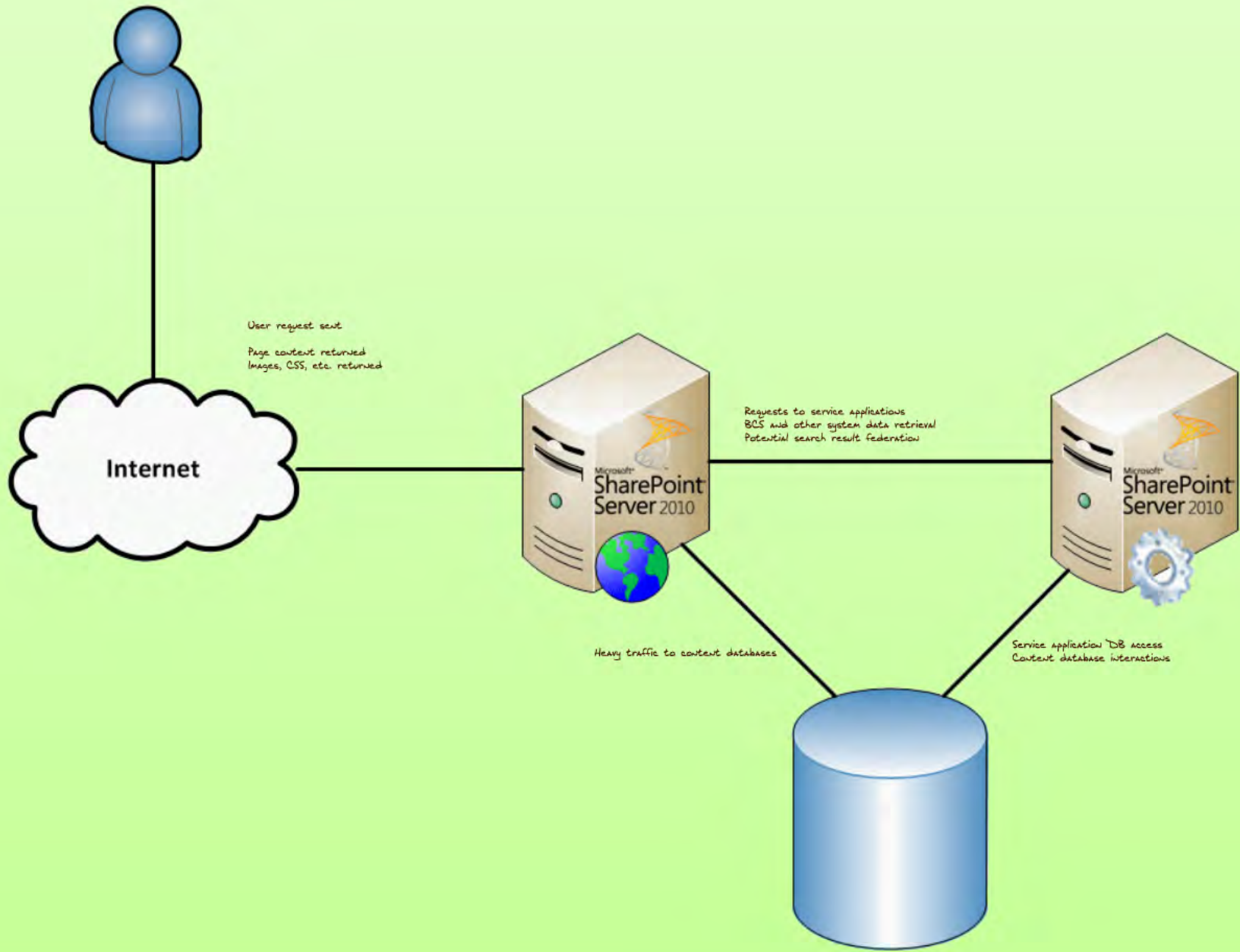
Option 2:
place data
closer to the
point of usage



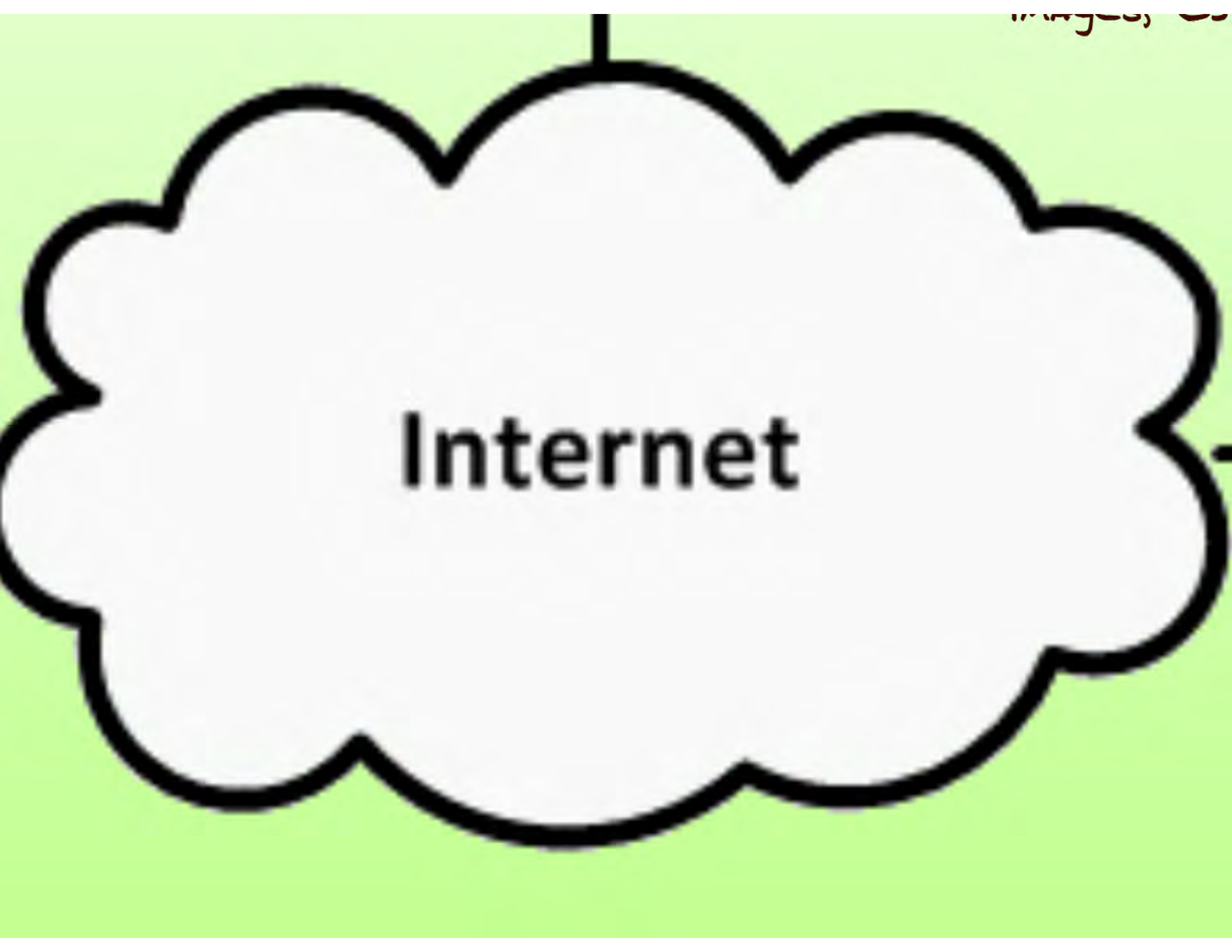
Why?

Why?

or at least "why for SharePoint?"





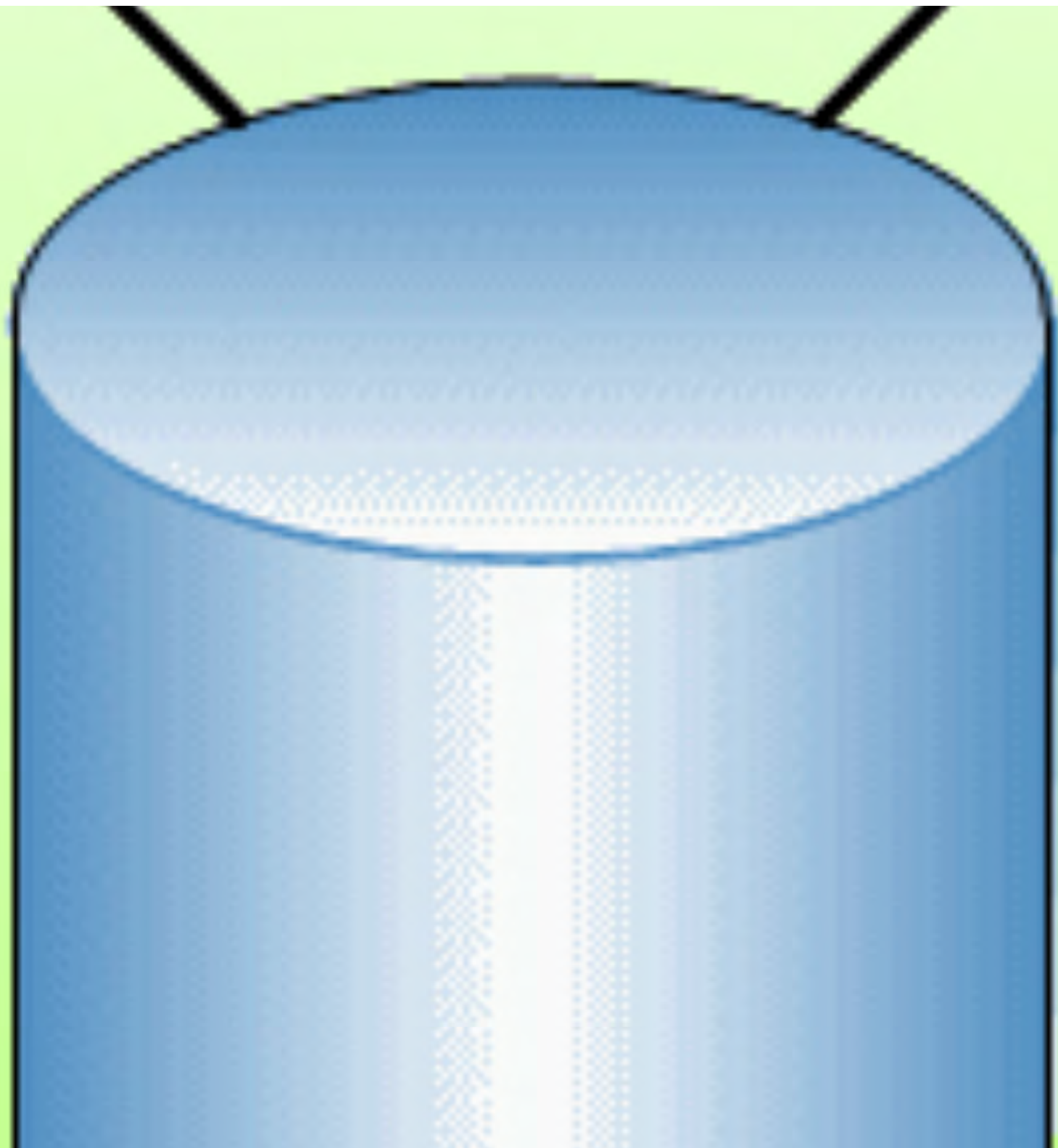


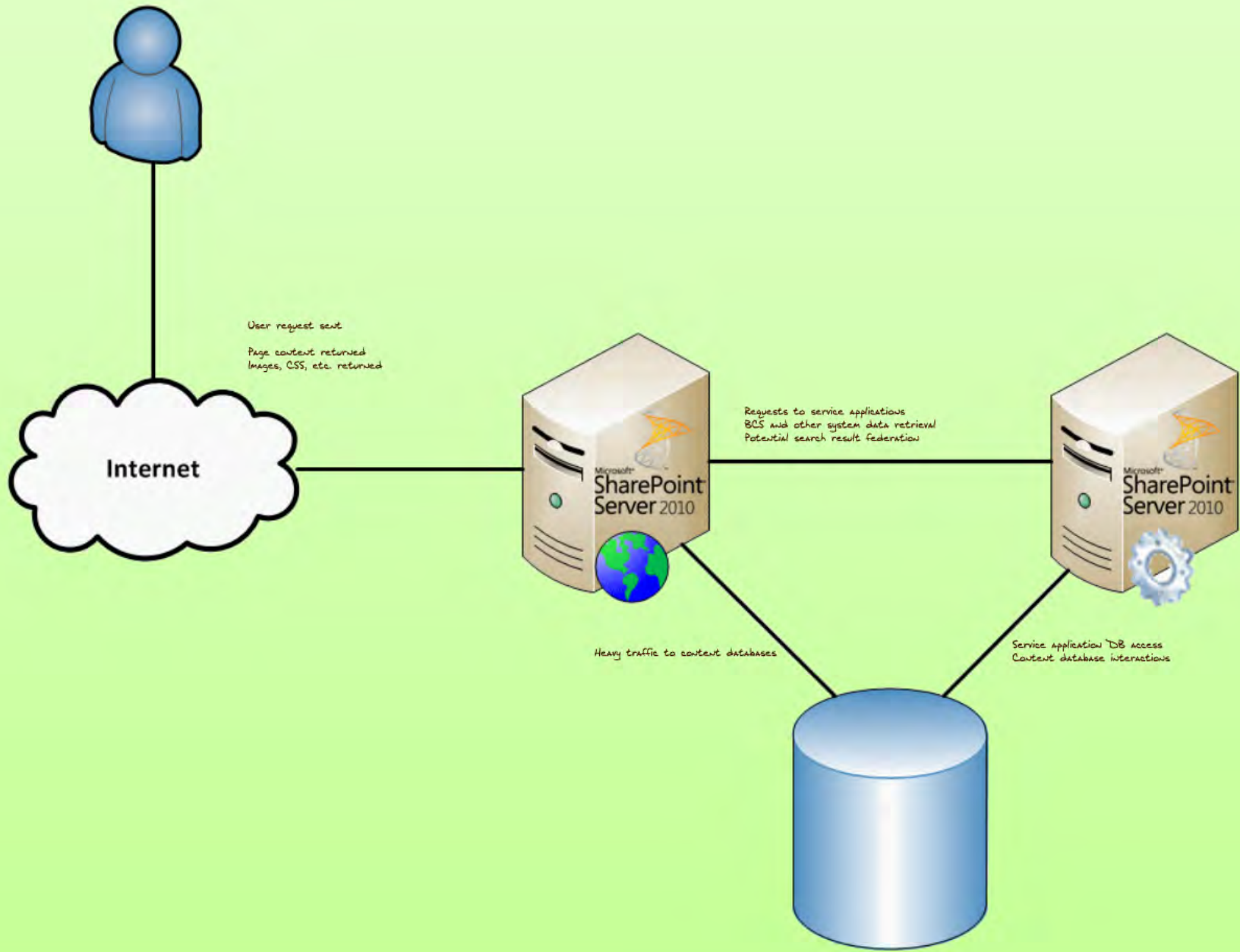
Internet



Re
BO
Po







User request sent

Page content returned
Images, CSS, etc. returned



Internet



Heavy traffic to content databases

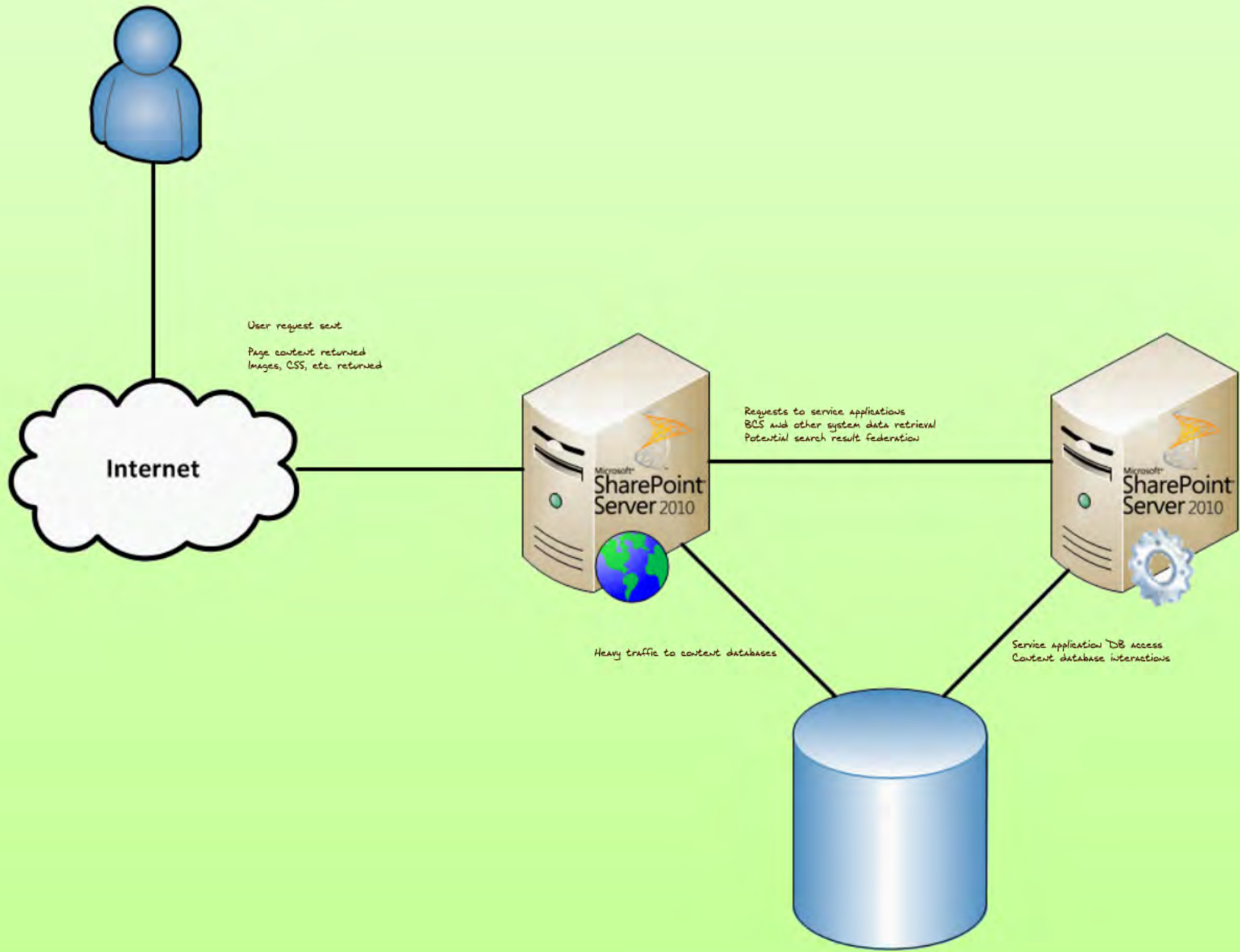
Requests to service applications
BCS and other system data retrieval
Potential search result federation

oint
010

A hand holding a gear, symbolizing control or management.

Service application DB access
Content database interactions

A blue cylinder, possibly representing a database or storage component.





Re
BO
Po

ASP.NET Page and Control Life Cycle

Key

Page

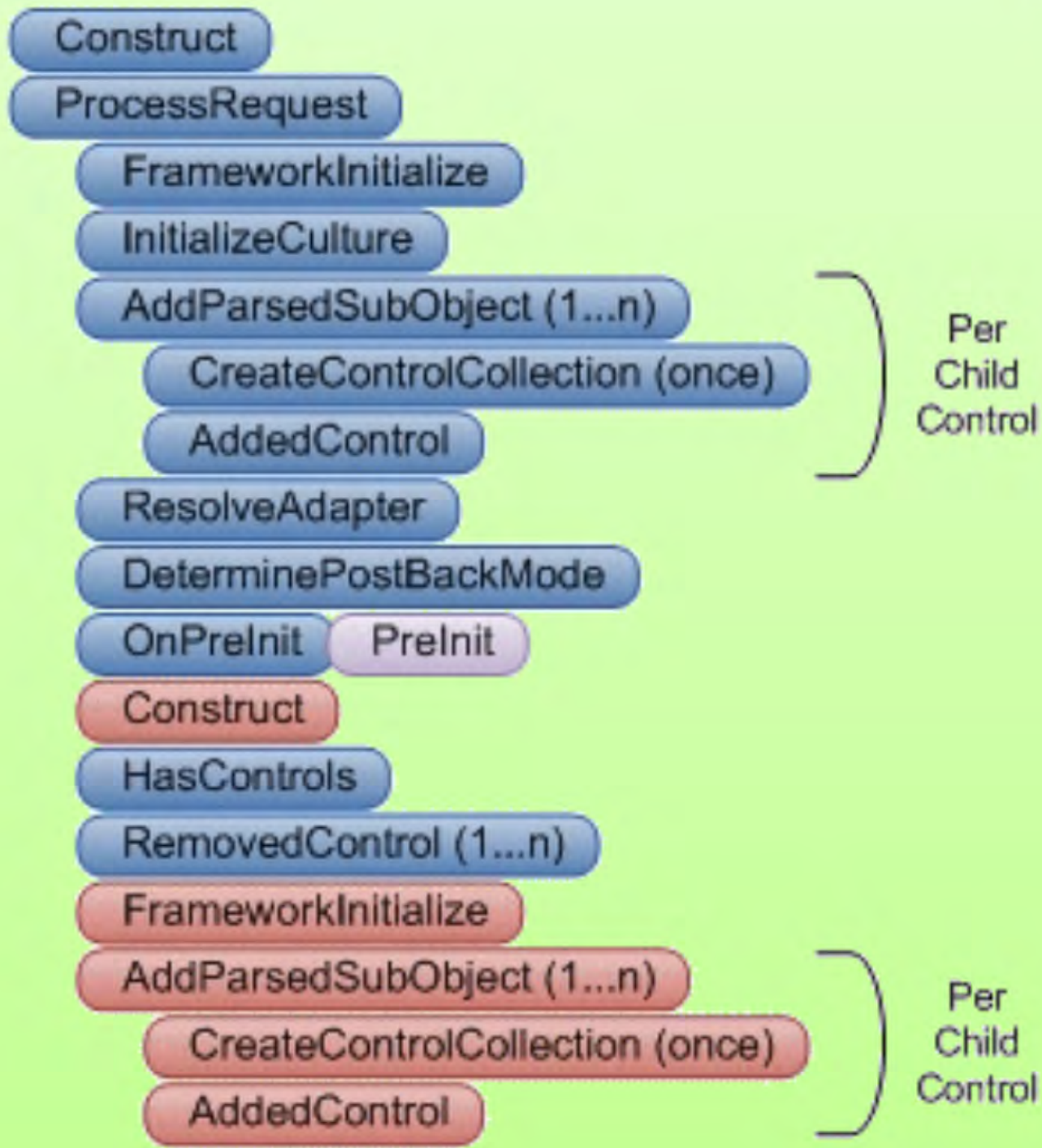
Master Page

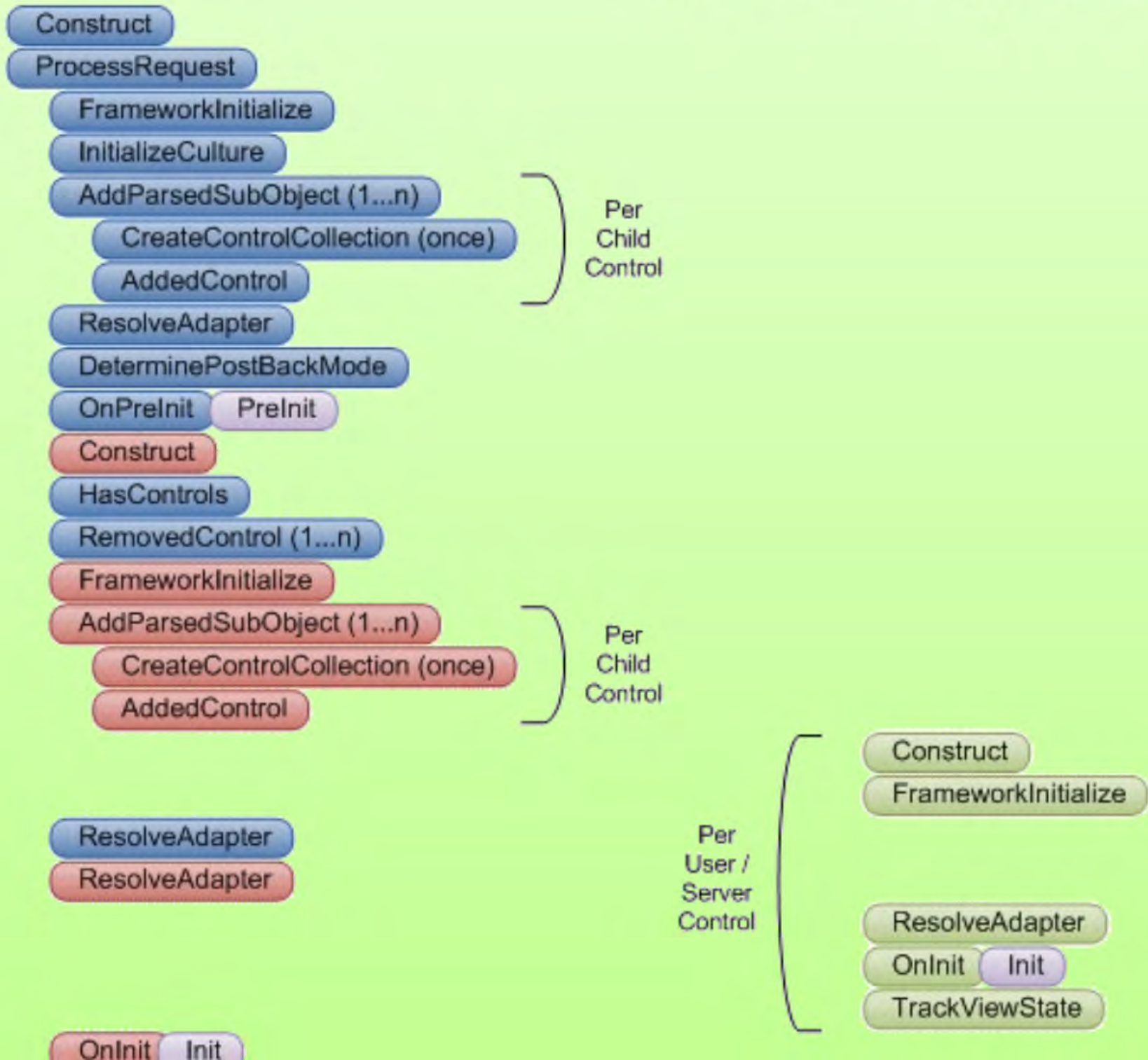
User Control

Server Control

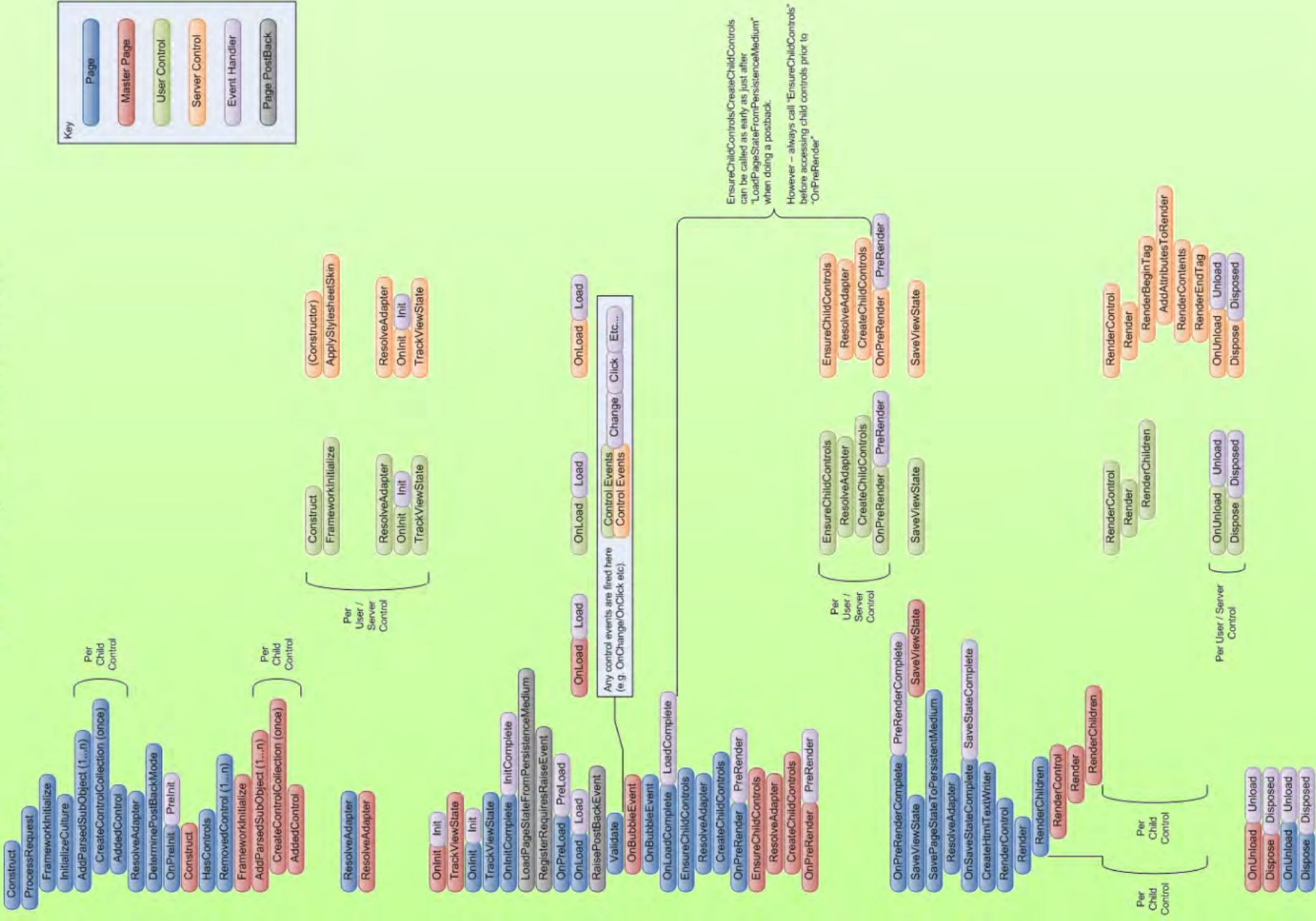
Event Handler

PagePostBack





ASP.NET Page and Control Life Cycle



thanks, Justin Stenning!

The ultimate goal of caching



Better performing,
more scalable sites
which yield a better
user experience

SharePoint caching: whatcha got?

- Object caching
- BLOB caching
- Page output caching
- Office web applications cache



SharePoint caching: whatcha got?

- Object caching
- BLOB caching
- Page output caching
- Office web applications cache



Mentioned but not covered in depth: web part cache, ASP.NET cache, IVaryByCustomHandler implementations, post-cache substitution, fragment caching, and other development topics/concerns

Unless otherwise noted,
we're talking about both
of the following:



e SharePoint er 2007

Also, I'll have slides (and maybe this presentation itself) available later on my blog

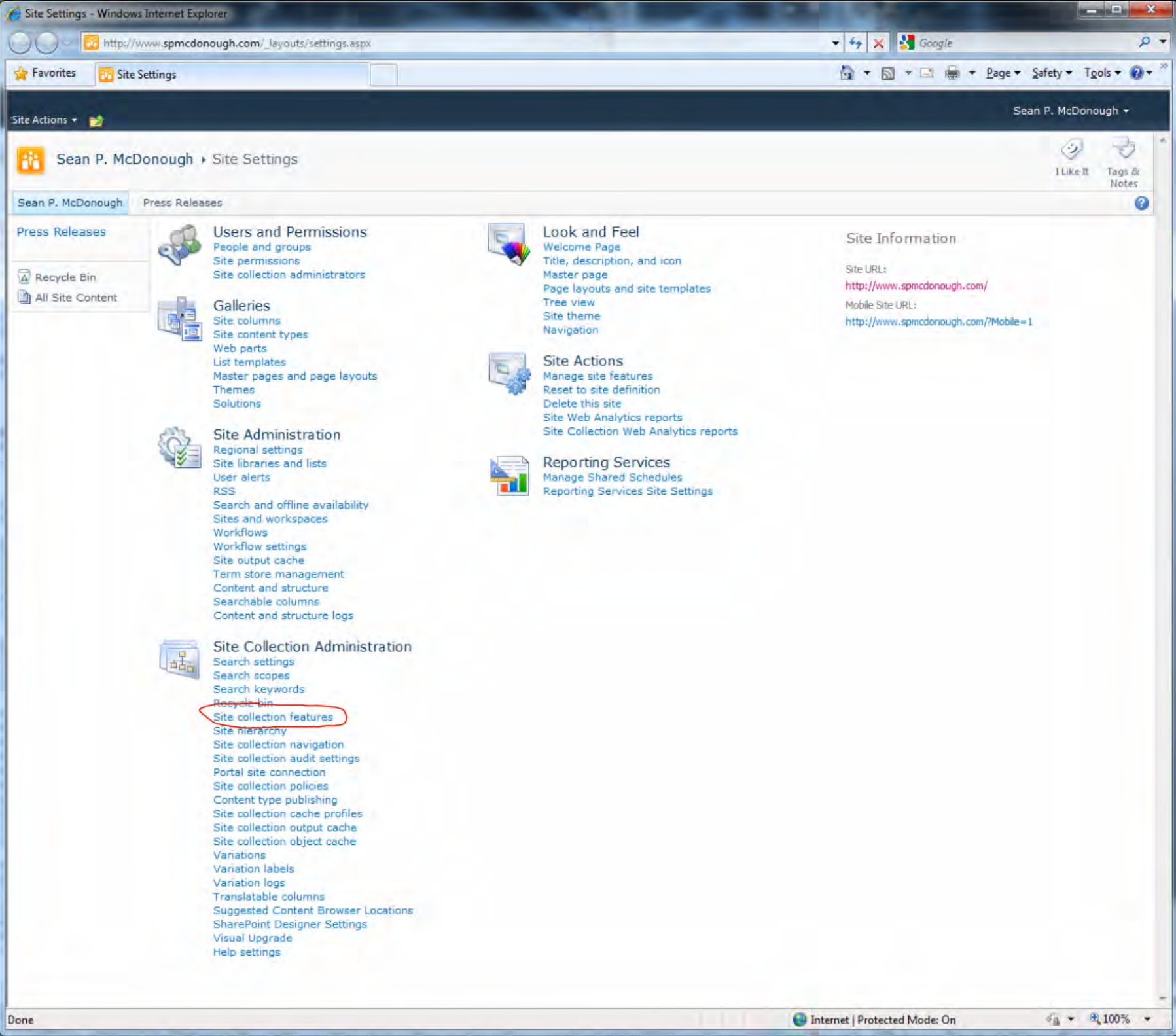
<http://SharePointInterface.com>

Short story
time...

Short story
time...



Where's the
#\$@! "on" button?



- Press Releases
- Recycle Bin
- All Site Content

- Users and Permissions**
 - People and groups
 - Site permissions
 - Site collection administrators

- Galleries**
 - Site columns
 - Site content types
 - Web parts
 - List templates
 - Master pages and page layouts
 - Themes
 - Solutions

- Site Administration**
 - Regional settings
 - Site libraries and lists
 - User alerts
 - RSS
 - Search and offline availability
 - Sites and workspaces
 - Workflows
 - Workflow settings
 - Site output cache
 - Term store management
 - Content and structure
 - Searchable columns
 - Content and structure logs

- Site Collection Administration**
 - Search settings
 - Search scopes
 - Search keywords
 - Recycle bin
 - Site collection features**
 - Site hierarchy
 - Site collection navigation
 - Site collection audit settings
 - Portal site connection
 - Site collection policies
 - Content type publishing
 - Site collection cache profiles
 - Site collection output cache
 - Site collection object cache
 - Variations
 - Variation labels
 - Variation logs
 - Translatable columns
 - Suggested Content Browser Locations
 - SharePoint Designer Settings
 - Visual Upgrade
 - Help settings

- Look and Feel**
 - Welcome Page
 - Title, description, and icon
 - Master page
 - Page layouts and site templates
 - Tree view
 - Site theme
 - Navigation

- Site Actions**
 - Manage site features
 - Reset to site definition
 - Delete this site
 - Site Web Analytics reports
 - Site Collection Web Analytics reports

- Reporting Services**
 - Manage Shared Schedules
 - Reporting Services Site Settings

Site Information

Site URL:
<http://www.spmcdonough.com/>
 Mobile Site URL:
<http://www.spmcdonough.com/?Mobile=1>

Searchable columns

Content and structure logs



Site Collection Administration

Search settings

Search scopes

Search keywords

Recycle bin

Site collection features

Site hierarchy

Site collection navigation

Site collection audit settings

Portal site connection

Site collection policies



















Content type publishing

Site collection cache profiles

Site Collection Features - Windows Internet Explorer

http://www.spmcdonough.com/_layouts/ManageFeatures.aspx?Scope=Site

Sean P. McD... Open Menu

	Custom Site Collection Help Creates a Help library that can be used to store custom help for this site collection.	Activate
	Disposition Approval Workflow Manages document expiration and retention by allowing participants to decide whether to retain or delete expired documents.	Deactivate Active
	Document ID Service Assigns IDs to documents in the Site Collection, which can be used to retrieve items independent of their current location.	Activate
	Document Sets Provides the content types required for creating and using document sets. Create a document set when you want to manage multiple documents as a single work product.	Activate
	In Place Records Management Enable the definition and declaration of records in place.	Activate
	Library and Folder Based Retention Allows list administrators to override content type retention schedules and set schedules on libraries and folders.	Activate
	Open Documents in Client Applications by Default Configures links to documents so they open in client applications instead of Web applications, by default.	Activate
	PerformancePoint Services Site Collection Features Features enabling the PerformancePoint Services site including content types and site definitions for this site collection.	Activate
	Publishing Approval Workflow Routes a page for approval. Approvers can approve or reject the page, reassign the approval task, or request changes to the page. This workflow can be edited in SharePoint Designer.	Deactivate Active
	Report Server Integration Feature Enables rich reporting using Microsoft SQL Server Reporting Services.	Deactivate Active
	Reporting Creates reports about information in Microsoft SharePoint Foundation.	Activate
	Search Server Web Parts This feature uploads all web parts required for Search Center.	Activate
	SharePoint 2007 Workflows Aggregated set of out-of-box workflow features provided by SharePoint 2007.	Activate
	SharePoint Server Enterprise Site Collection features Features such as InfoPath Forms Services, Visio Services, Access Services, and Excel Services Application, included in the SharePoint Server Enterprise License.	Activate
	SharePoint Server Publishing Infrastructure Provides centralized libraries, content types, master pages and page layouts and enables page scheduling and other publishing functionality for a site collection.	Deactivate Active
	SharePoint Server Standard Site Collection features Features such as user profiles and search, included in the SharePoint Server Standard License.	Activate
	Three-state workflow Use this workflow to track items in a list.	Activate
	Workflows Aggregated set of out-of-box workflow features provided by SharePoint.	Deactivate Active

Of course, this poses some problems for WSSv3 with SPF users ...

Done Internet | Protected Mode: On 100%



SharePoint 2007 Workflows

Aggregated set of out-of-box workflow features provided



SharePoint Server Enterprise Site Collection features

Features such as InfoPath Forms Services, Visio Services, and SharePoint Server Enterprise License.



SharePoint Server Publishing Infrastructure

Provides centralized libraries, content types, master page functionality for a site collection.



SharePoint Server Standard Site Collection features

Features such as user profiles and search, included in the



Three-state workflow

Use this workflow to track items in a list.

Activate

Activate

Deactivate

Active

Activate

Activate

... know features provided by Office Online

... Site Collection features

... Services, Visio Services, Access Services
... license.

Of course, this poses
some problems for WSSv3
and SP2 users ...

... Infrastructure



... content types, master pages and page layout
... n.

... Site Collection features

... and search, included in the SharePoint Ser



So ... how does
the plumbing work?

Yes, just a section.

Prezi choked when I tried to use AN image of the whole web.config. It WAS really, really, REALLY big




```
<machineKey validationKey="D0580BED7E8B10F1281E63023A6B5A057D8DC770B53DA72E" decryptionKey="98A395174F2D3EC29D
</system.web>
<system.webServer>
  <security>
    <requestFiltering allowDoubleEscaping="true">
      <requestLimits maxAllowedContentLength="2147483647" />
    </requestFiltering>
  </security>
  <validation validateIntegratedModeConfiguration="false" />
  <modules runAllManagedModulesForAllRequests="true">
    <remove name="AnonymousIdentification" />
    <remove name="FileAuthorization" />
    <remove name="Profile" />
    <remove name="WebDAVModule" />
    <remove name="Session" />
    <add name="SPRequestModule" preCondition="integratedMode" type="Microsoft.SharePoint.ApplicationRuntime.SPRe
    <add name="ScriptModule" preCondition="integratedMode" type="System.Web.Handlers.ScriptModule, System.Web.Ex
    <add name="SharePoint14Module" preCondition="integratedMode" />
    <add name="StateServiceModule" type="Microsoft.Office.Server.Administration.StateModule, Microsoft.Office.Se
    <add name="RSRedirectModule" type="Microsoft.ReportingServices.SharePoint.Soap.RSRedirectModule, RSSharePoin
    <add name="PublishingHttpModule" type="Microsoft.SharePoint.Publishing.PublishingHttpModule, Microsoft.Share
  </modules>
  <handlers>
    <remove name="OPTIONSVerbHandler" />
    <remove name="WebServiceHandlerFactory-Integrated" />
    <remove name="svc-Integrated" />
    <remove name="WebDAV" />
    <add name="svc-Integrated" path="*.svc" verb="*" type="System.ServiceModel.Activation.HttpHandler, System.Se
    <add name="OwssvrHandler" scriptProcessor="C:\Program Files\Common Files\Microsoft Shared\Web Server Extensi
    <add name="ScriptHandlerFactory" verb="*" path="*.asmx" preCondition="integratedMode" type="System.Web.Scrip
    <add name="ScriptHandlerFactoryAppServices" verb="*" path="*_AppService.axd" preCondition="integratedMode" t
    <add name="ScriptResource" preCondition="integratedMode" verb="GET,HEAD" path="ScriptResource.axd" type="Sys
    <add name="JSONHandlerFactory" path="*.json" verb="*" type="System.Web.Script.Services.ScriptHandlerFactory,
    <add name="ReportViewerWebPart" verb="*" path="Reserved.ReportViewerWebPart.axd" type="Microsoft.ReportingSe
    <add name="ReportViewerWebControl" verb="*" path="Reserved.ReportViewerWebControl.axd" type="Microsoft.Repor
  </handlers>
</system.webServer>
<system.serviceModel>
  <serviceHostingEnvironment aspNetCompatibilityEnabled="true" />
```

Caching in action

Consider this
sample page as
we discuss
SharePoint's
caching
mechanisms...

The screenshot shows a web browser window with the address bar containing `http://spdev:18480/Pages/default.aspx`. The page title is "My SharePoint Site". The browser's address bar includes navigation icons (back, forward, stop, home) and a search icon. The page header features a "My SharePoint Site" logo, a user profile "SPDCvme", and a search box labeled "Search this site..". Below the header, there is a "Site Actions" menu and a breadcrumb trail: "Top-Level Site > My SharePoint Site".

The main content area is divided into two columns. The left column has a "Home" section with three buttons: "My SharePoint Site", "Your SharePoint Site", and "Another Site". The right column features a "Welcome Back, Bob!" message above a large image of a group of people. Below the image, there are two text boxes. The first box contains a video icon and the text: "It is by will alone I set my mind in motion." followed by "It is by the juice of Sapho that thoughts acquire speed, the lips acquire stains, the stains become a warning." and "It is by will alone I set my mind in motion." The second box contains the text: "Just sit right back and you'll hear a tale, a tale of a fateful trip, That started from this tropic port, aboard this tiny ship. The mate was a mighty sailin' man, the Skipper brave and sure. Five passengers set sail that day for a three hour tour. A three hour tour." and "The weather started".

First up ...

First up ...



Object caching

Object caching

Speeds access to frequently referenced structural, property, and result data



Navigational data such as this breadcrumb ...

... And the Quick Launch

page layouts also get cached

If this happens be a Content Query Web Part (CQWP), then could benefit significantly from object caching



NAVIGATIONAL DATA
such as this
breadcrumb ...



Site Actions

Home

My SharePoint Site

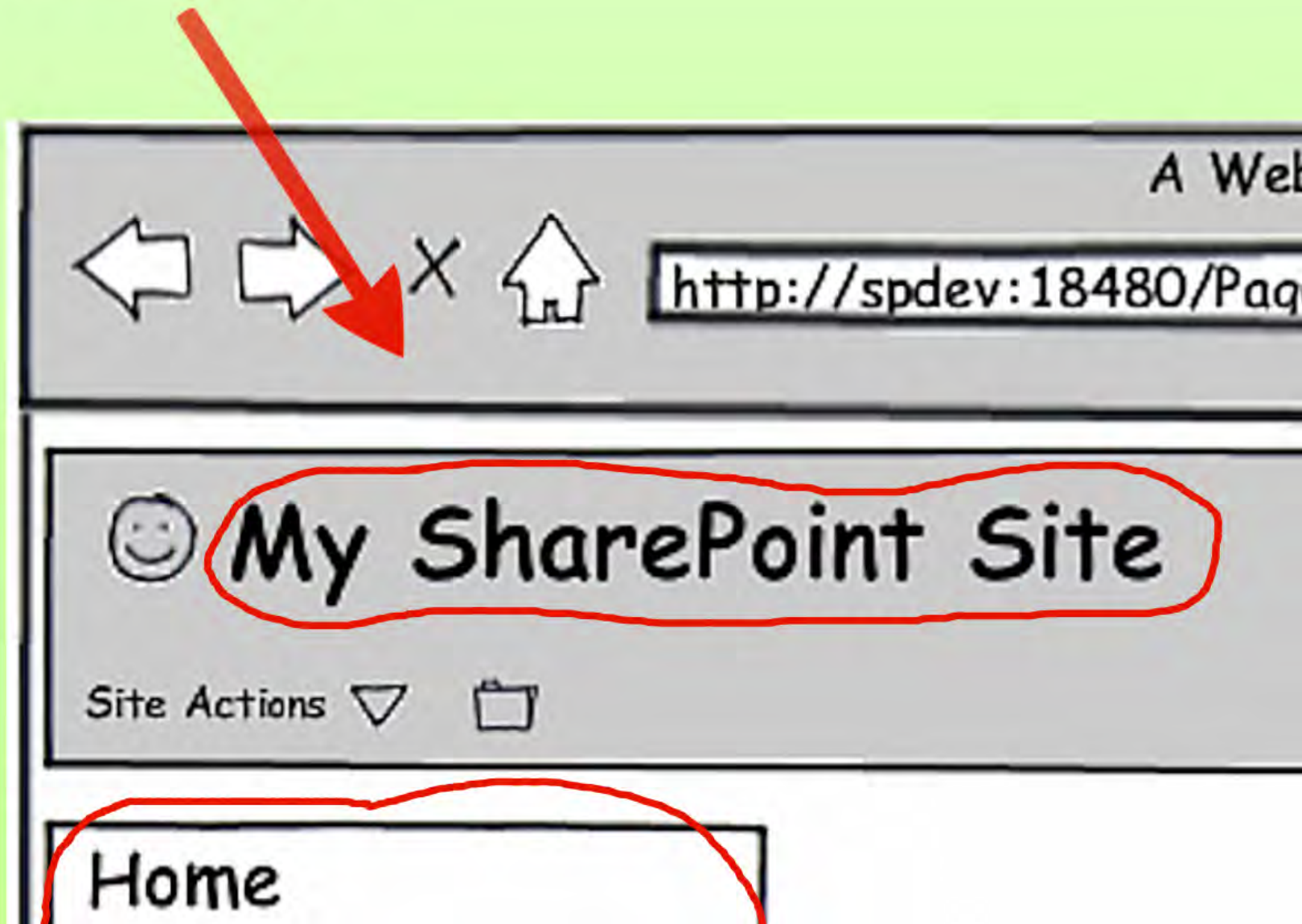
Your SharePoint Site

Another Site




... AND the Quick Launch

Site properties
like the title



Just sit right back and
you'll hear a tale, a tale
of a fateful trip, That
started from this tropic
port, aboard this tiny ship.
The mate was a mighty
sailin' man, the Skipper
brave and sure. Five
passengers set sail that
day for a three hour tour.
A three hour tour.

The weather started



If this happened to
be a Content
Query Web Part
(CQWP), then it
could benefit
significantly from
object caching.

page layouts also
get cached

the
spe
sta
war

It
min



Navigational data such as this breadcrumb ...

... And the Quick Launch

page layouts also get cached

If this happens to be a Content Query Web Part (CQWP), there could be significant benefits from object caching

Object cache

Object cache

Backed by memory



Object cache

Backed by memory



Turned on by default



Object cache

Backed by memory



Turned on by default



Default ~~size~~ or allocation

100MB per
site collection

Object cache

Backed by memory



Turned on by default



Default ~~size~~ or allocation

100MB per
site collection

A new trick that comes with SharePoint 2010 ...


```
<Action id="0ff1ce14-1021-0000-0000-000000000000" />
<Action id="ec0076ac-0c35-4880-8422-8062f5925000" />
<Action id="602bc8c3-9286-49a3-b973-3376ca78b000" />
<Action id="00e22a78-33ff-41ac-b0fb-ee46d1636000" />
<Action id="4b60e42e-e6fc-4188-80d2-ef39e7cc0000" />
<Action id="1d415973-1146-4bc2-8324-83dfff5bfb00" />
</MergedActions>
<BlobCache location="C:\BlobCache\14" path="\." />
<ObjectCache maxSize="100" />
<OutputCacheProfiles useCacheProfileOverrides="true" />
<RuntimeFilter Assembly="Microsoft.Office.Server.Search.CrawlProvider" />
</SharePoint>
<system.web>
  <securityPolicy>
    <trustLevel name="WSS_Medium" policyFile="C:\Program Files\Microsoft Office\Office14\WSS_Medium.policy" />
    <trustLevel name="WSS_Minimal" policyFile="C:\Program Files\Microsoft Office\Office14\WSS_Minimal.policy" />
  </securityPolicy>
  <httpHandlers />
  <customErrors mode="On" />
  <httpRuntime maxRequestLength="51200" />
</system.web>
</configuration>
```

Sean P. McDonough > Site Settings

Sean P. McDonough Press Releases

Press Releases

- Recycle Bin
- All Site Content

Users and Permissions
People and groups
Site permissions
Site collection administrators

Galleries
Site columns
Site content types
Web parts
List templates
Master pages and page layouts
Themes
Solutions

Site Administration
Regional settings
Site libraries and lists
User alerts
RSS
Search and offline availability
Sites and workspaces
Workflows
Workflow settings
Site output cache
Term store management
Content and structure
Searchable columns
Content and structure logs

Site Collection Administration
Search settings
Search scopes
Search keywords
Recycle bin
Site collection features
Site hierarchy
Site collection navigation
Site collection audit settings
Portal site connection
Site collection policies
Content type publishing
Site collection cache profiles
Site collection output cache
Site collection object cache
Variations
Variation labels
Variation logs
Translatable columns
Suggested Content Browser Locations
SharePoint Designer Settings
Visual Upgrade
Help settings

Look and Feel
Welcome Page
Title, description, and icon
Master page
Page layouts and site templates
Tree view
Site theme
Navigation

Site Actions
Manage site features
Reset to site definition
Delete this site
Site Web Analytics reports
Site Collection Web Analytics reports

Reporting Services
Manage Shared Schedules
Reporting Services Site Settings

Site Information

Site URL:
<http://www.spmcdonough.com/>
Mobile Site URL:
<http://www.spmcdonough.com/?Mobile=1>

[Site collection navigation](#)

[Site collection audit settings](#)

[Portal site connection](#)

[Site collection policies](#)

[Content type publishing](#)

[Site collection cache profiles](#)

[Site collection output cache](#)

[Site collection object cache](#)

[Variations](#)

[Variation labels](#)

[Variation logs](#)

[Translatable columns](#)

[Suggested Content Browser Locations](#)

[SharePoint Designer Settings](#)

[Visual Upgrade](#)

[Help settings](#)

Site Collection Administration > Object cache settings

Configure settings for the object cache.

Sean P. McDonough Press Releases

Search this site...

Press Releases

Object Cache Size

Object Cache Size [Learn more about the object cache.](#)

Max. Cache Size (MB):

100

Recycle Bin

All Site Content

Object Cache Reset

When you select this check box, all entries in the object cache will be flushed immediately when you click **OK**. If this check box is not selected, the cache will manage the expiration of items based on when they time out or are changed in the site.

Object Cache Flush

Force all servers in the farm to flush their object caches

Cross List Query Cache Changes

Cross list queries initiated by the Content Query Web Part or other custom implementations can use up server resources. Specifying an amount of time to cache the results of a cross list query can positively impact cross-list query performance but may display results that do not reflect the most recent changes to the items returned by the query. Checking the server each time cross list query runs will produce the most accurate results at the possible cost of slower performance across the site.

Check the server for changes every time a cross list query runs
 Use the cached result of a cross list query for this many seconds:

60

Cross List Query Results Multiplier

Each cross list query might retrieve results for a variety of users. To ensure after security trimming that all users will see a valid set of results, the cross list query cache must pull more results than originally requested. Specifying a larger number will retrieve more data from the server and is ideal for site collections that have unique security applied on many lists and sites. Specifying a smaller number will consume less memory per cross list query and is ideally suited for site collections that do not have unique security on each list or site.

Cross list query multiplier:

3

OK

Cancel



Collection Administration ▶ Object

figure settings for the object cache.

Donough

Press Releases

ases

Object Cache Size

Object Cache Size [Learn more about t](#)

Bin

Search this site...

Max. Cache Size (MB):

100



And now, for a painful story ...

The take-away:

Don't dial-down the object cache allocation unless you know what you're doing and understand the implications of having too little memory allocated!

S

Object Cache Size

Object Cache Size [Learn more about](#)

ent

Object Cache Reset

When you select this check box, all entries in the object cache are deleted when you click **OK**. If this check box is not selected, the cache is not reset when the entries time out or are changed.

100



Object Cache Flush



Force all servers in the farm to flush th



Check the server for changes every tim

you click **OK**. If this check box is not selected, the cache is updated when they time out or are changed in the database.

Cross List Query Cache Changes

Cross list queries initiated by the Content Query Engine can use up server resources. Specifying an amount of time to cache the results can positively impact cross-list query performance. The most recent changes to the items returned by the query runs will produce the most accurate results across the site.

Force all servers in the farm to flush the

Check the server for changes every time
query runs

Use the cached result of a cross list query
seconds:

60





Cross List Query Results Multiplier

Each cross list query might retrieve results that all users will see a valid set of results, originally requested. Specifying a larger number for site collections that have unique security number will consume less memory per cross do not have unique security on each list or

Cross list query multiplier:

3

Guidance

	Anonymous	Authenticated
Cache Duration		
Cross List Multiplier		

Especially if per-site and per-item security is prevalent



Especially if per-site
and per-item security
is prevalent

Site Collection Administration > Object cache settings

Configure settings for the object cache.

Sean P. McDonough Press Releases

Search this site...

Press Releases

Object Cache Size

Object Cache Size [Learn more about the object cache.](#)

Max. Cache Size (MB):

100

Recycle Bin

All Site Content

Object Cache Reset

When you select this check box, all entries in the object cache will be flushed immediately when you click **OK**. If this check box is not selected, the cache will manage the expiration of items based on when they time out or are changed in the site.

Object Cache Flush

Force all servers in the farm to flush their object caches

Cross List Query Cache Changes

Cross list queries initiated by the Content Query Web Part or other custom implementations can use up server resources. Specifying an amount of time to cache the results of a cross list query can positively impact cross-list query performance but may display results that do not reflect the most recent changes to the items returned by the query. Checking the server each time cross list query runs will produce the most accurate results at the possible cost of slower performance across the site.

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60

Cross List Query Results Multiplier

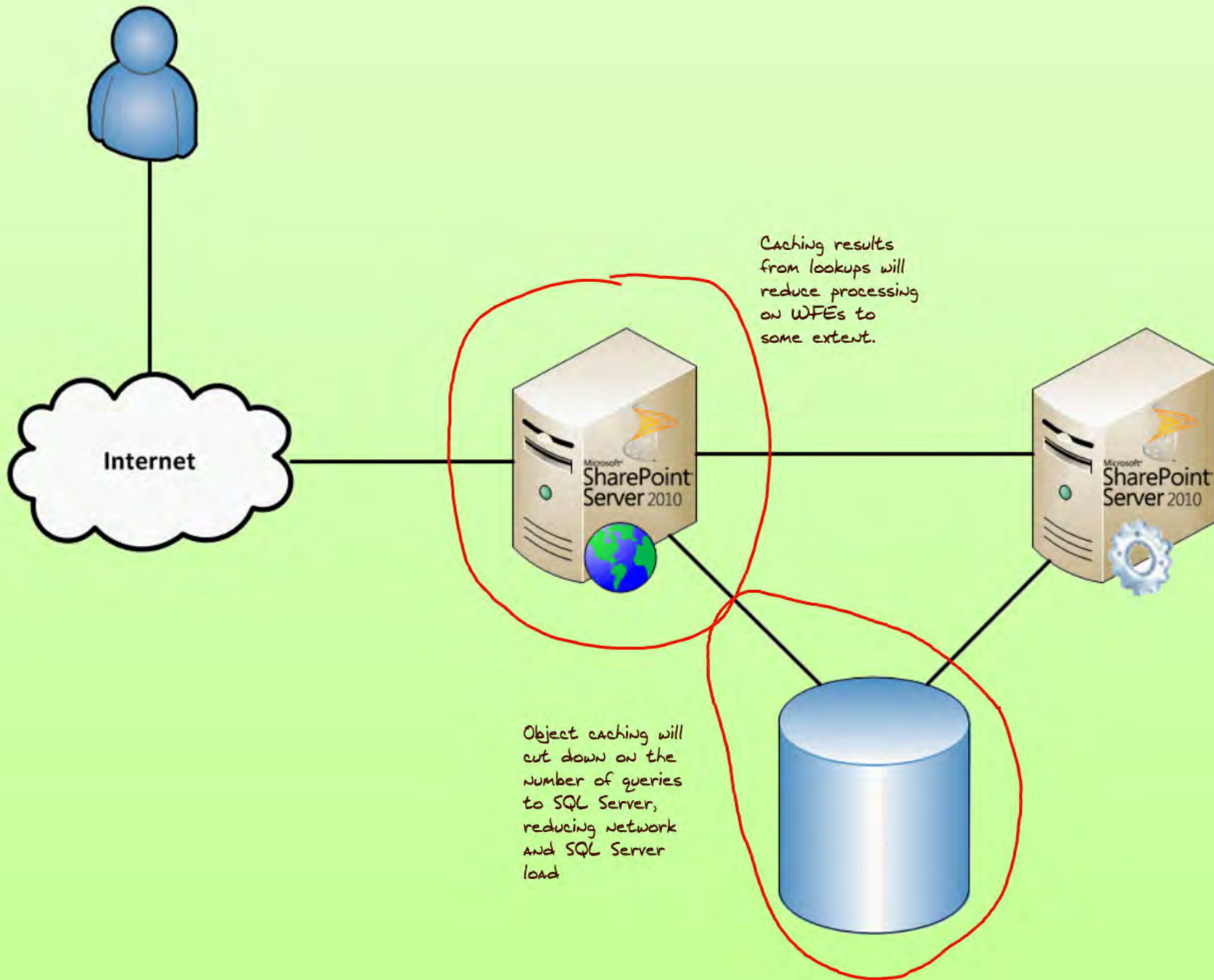
Each cross list query might retrieve results for a variety of users. To ensure after security trimming that all users will see a valid set of results, the cross list query cache must pull more results than originally requested. Specifying a larger number will retrieve more data from the server and is ideal for site collections that have unique security applied on many lists and sites. Specifying a smaller number will consume less memory per cross list query and is ideally suited for site collections that do not have unique security on each list or site.

Cross list query multiplier:

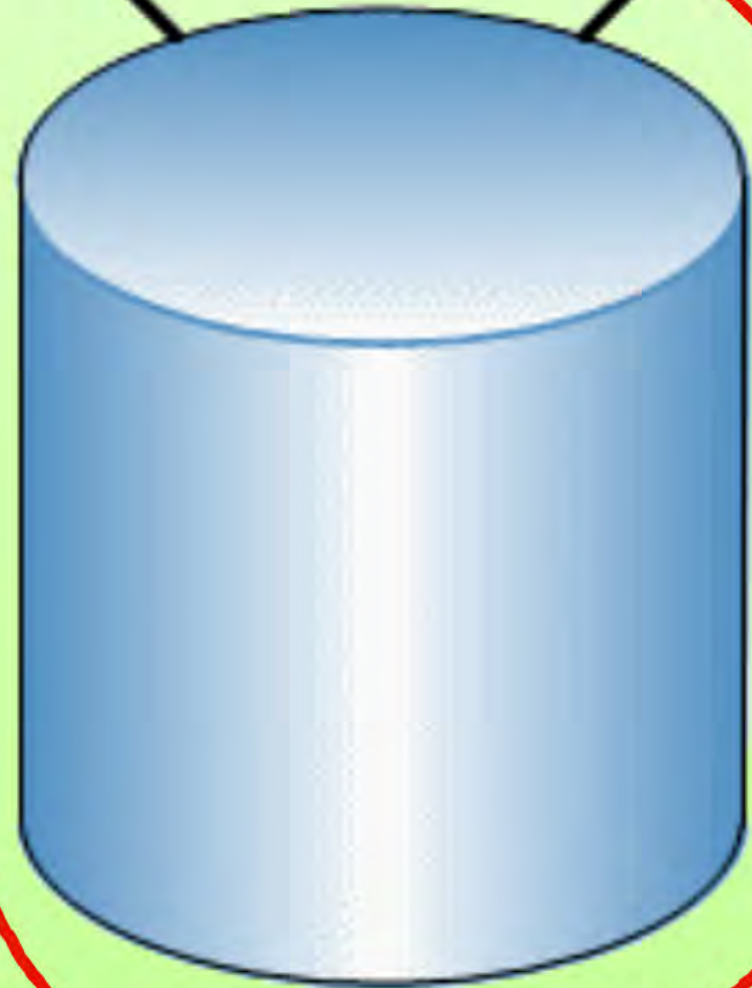
3

OK

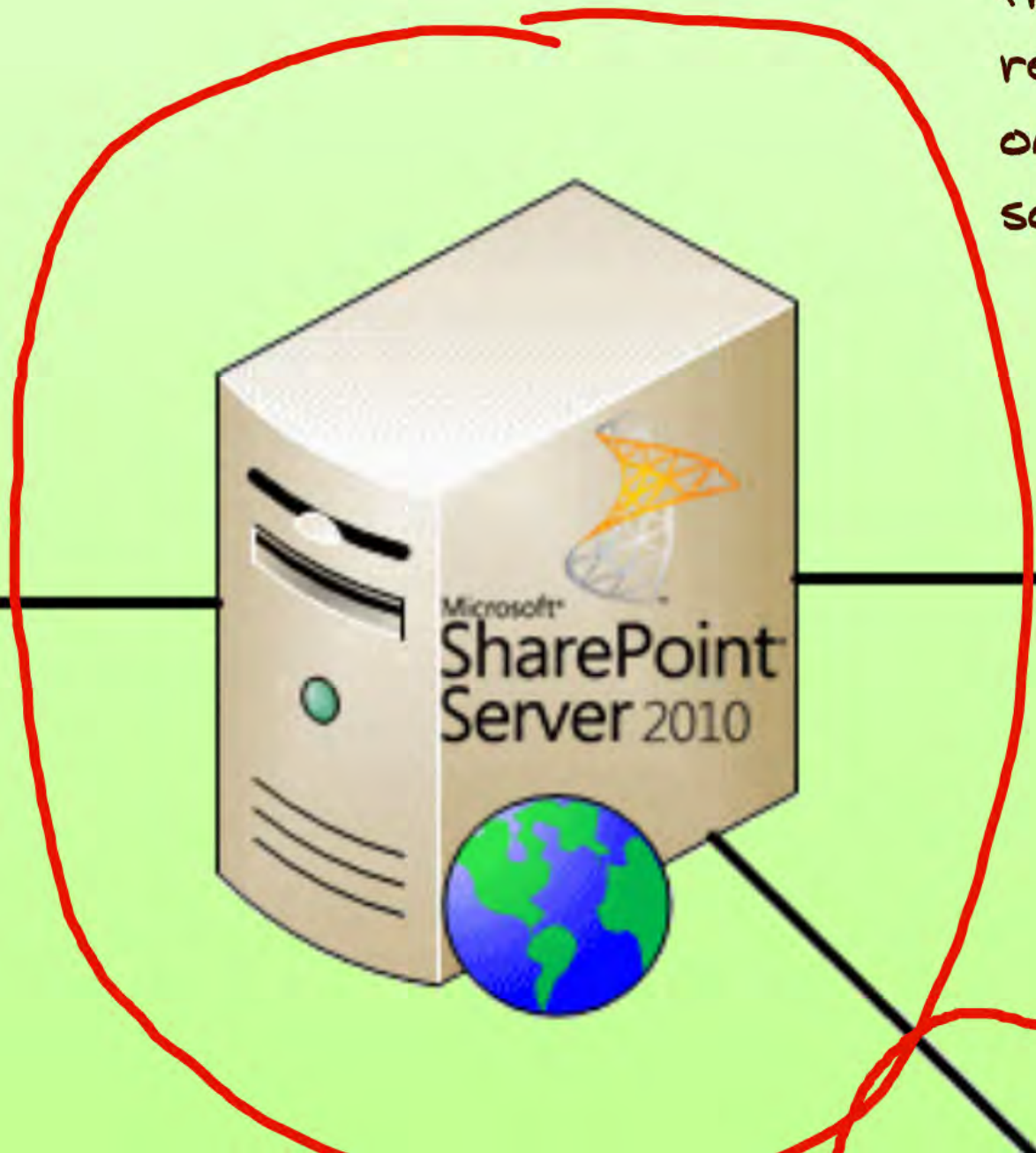
Cancel

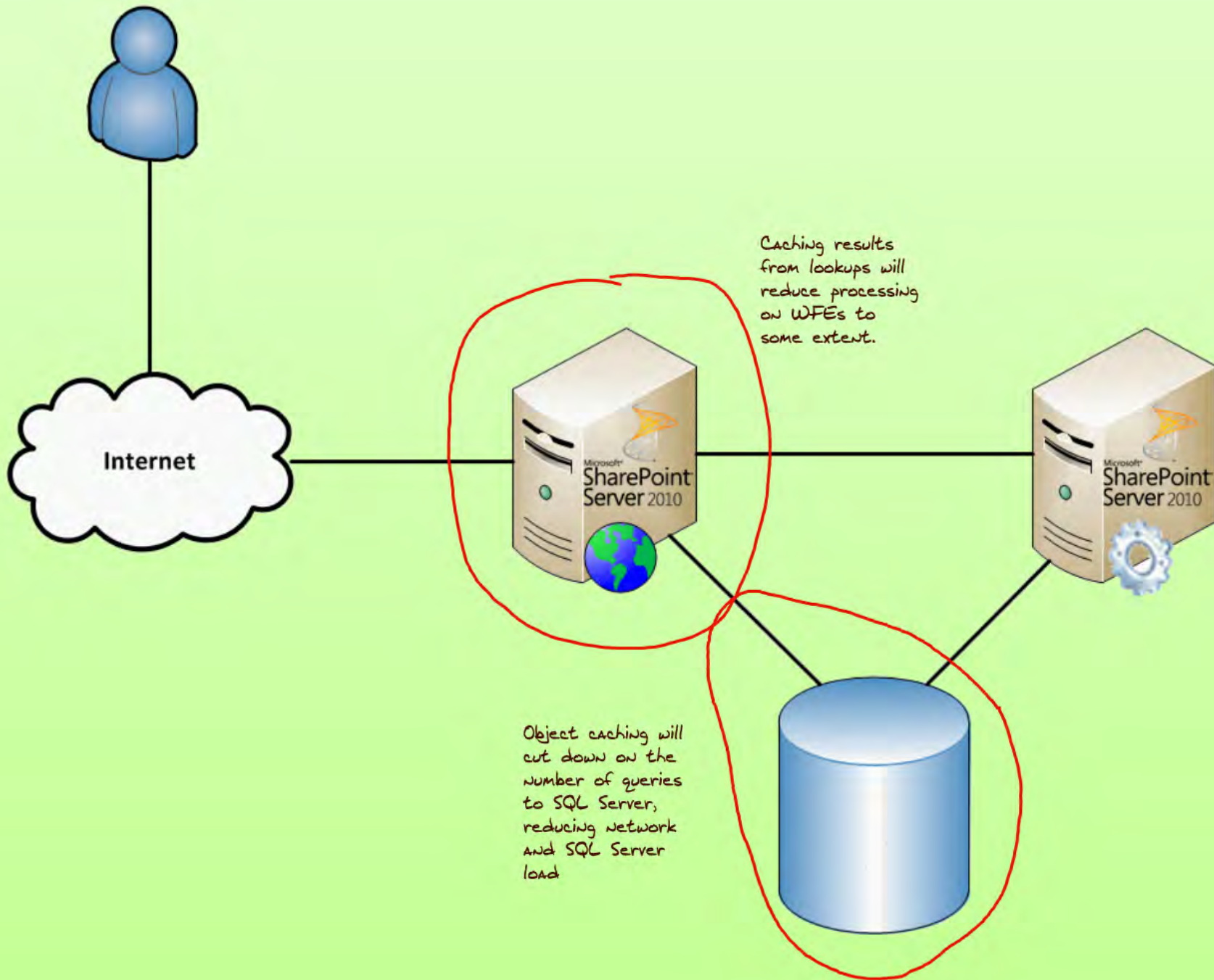


Object caching will cut down on the number of queries to SQL Server, reducing network and SQL Server load



Caching results from lookups will reduce processing on WFEs to some extent.





Current problem with SharePoint 2010

Current problem with SharePoint 2010

Object cache access accounts are configurable, but their defaults are particularly poor choices for most environments

- Portal Super User: System Account
- Portal Super Reader: NT Authority\Local Service

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Problems this causes

- Checked-out items can be returned with System Account, forcing re-fetch of objects from the content database
- Access denied issues with claims-based authentication since NT Authority\Local Service account does not properly resolve

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Problems this causes

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- Access denied issues with claims-based authentication since NT Authority\Local Service account does not properly resolve

The fix

- Use PowerShell to assign domain user accounts to each role and then specify web application policies for each account

Next up ...

Next up ...



BLOB caching



No, not that
kind of BLOB

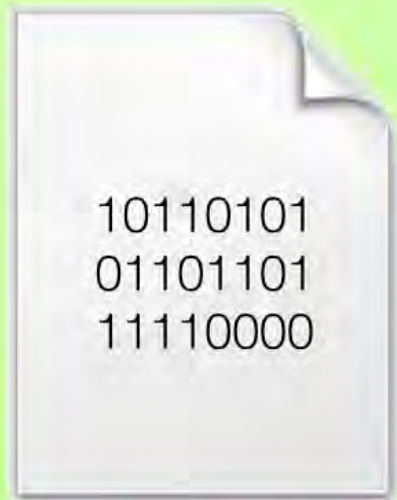
BLOB = binary large object

teaching



FIGHT NIGHT

FIGHT NIGHT



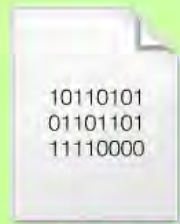
BLOB

VS



Blob

FIGHT NIGHT



BLOB

VS

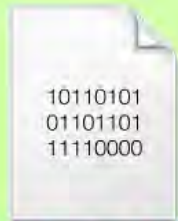


Blob

Chews up database space

Consumes entire cities

FIGHT NIGHT



BLOB

VS



Blob

Chews up database space

Consumes entire cities

Hated by database admins

Bane of humanity

FIGHT NIGHT



BLOB

VS



Blob

Chews up database space

Consumes entire cities

Hated by database admins

Bane of humanity

Kills attempts to organize
database pages and extents

Kills anyone stupid enough to
get in its slow-moving way

FIGHT NIGHT



BLOB

VS



Blob

Chews up database space

Consumes entire cities

Hated by database admins

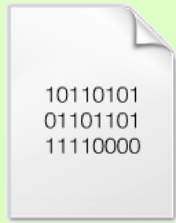
Bane of humanity

Kills attempts to organize
database pages and extents

Kills anyone stupid enough to
get in its slow-moving way

Conquered with RBS

Wiped out through military
action ... sometimes ...



BLOB

VS



Blob

Chews up database space

Consumes entire cities

Hated by database admins

Bane of humanity

Kills attempts to organize
database pages and extents

Kills anyone stupid enough to
get in its slow-moving way

Conquered with RBS

Wiped out through military
action ... sometimes ...

WINNER!



No, not that
kind of BLOB

BLOB = binary large object

teaching





BLOB = binary large object

aching



also known as "disk-based caching"



http://spdev:18480/Pages/default.aspx



My SharePoint Site

SPDC\me

Site Actions

Search this site..

Top-Level Site > My SharePoint Site

Home

My SharePoint Site

Your SharePoint Site

Another Site

Welcome Back, Bob!



It is by will alone I set my mind in motion.

It is by the juice of Sapho that thoughts acquire speed, the lips acquire stains, the stains become a warning.

It is by will alone I set my mind in motion.

Just sit right back and you'll hear a tale, a tale of a fateful trip, That started from this tropic port, aboard this tiny ship. The mate was a mighty sailin' man, the Skipper brave and sure. Five passengers set sail that day for a three hour tour. A three hour tour.

The weather started

Caching can be extended to cover any static file type, including Flash, PDF, and other common web file types.

Everything that's highlighted in pink would be cached through BLOB caching

Everything that's
highlighted in pink
would be cached
through BLOB
caching



http://spdev:18480/Pages/default.aspx



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It is by w
mind in mo

It is by t
that thou



http://spdev:18480/Pages/default.aspx



My SharePoint Site

SPDC\me

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BLOB cache

BLOB cache

Backed by disk



BLOB cache

Backed by disk



Turned off by default



BLOB cache

Backed by disk



Turned off by default



Default ~~size~~ or allocation

10GB per
IIS site (zone)

BLOB cache

Backed by disk



Turned off by default



Default ~~size~~ or allocation

10GB per
IIS site (zone)

Controlled through web.config settings


```
<Action id="0ff1ce14-1019-0000-0000-000000000000" sourceFile="C:\Program Files\Common Files\Micro
<Action id="0ff1ce14-101a-0000-0000-000000000000" sourceFile="C:\Program Files\Common Files\Micro
<Action id="0ff1ce14-101b-0000-0000-000000000000" sourceFile="C:\Program Files\Common Files\Micro
<Action id="0ff1ce14-101c-0000-0000-000000000000" sourceFile="C:\Program Files\Common Files\Micro
<Action id="0ff1ce14-101d-0000-0000-000000000000" sourceFile="C:\Program Files\Common Files\Micro
<Action id="0ff1ce14-101e-0000-0000-000000000000" sourceFile="C:\Program Files\Common Files\Micro
<Action id="0ff1ce14-1020-0000-0000-000000000000" sourceFile="C:\Program Files\Common Files\Micro
<Action id="0ff1ce14-1021-0000-0000-000000000000" sourceFile="C:\Program Files\Common Files\Micro
<Action id="ec0076ac-0c35-4880-8422-8062f5925bec" sourceFile="C:\Program Files\Common Files\Micro
<Action id="602bc8c3-9286-49a3-b973-3376ca78b297" sourceFile="C:\Program Files\Common Files\Micro
<Action id="00e22a78-33ff-41ac-b0fb-ee46d1636e22" sourceFile="C:\Program Files\Common Files\Micro
<Action id="4b60e42e-e6fc-4188-80d2-ef39e7cc0065" sourceFile="C:\Program Files\Common Files\Micro
<Action id="1d415973-1146-4bc2-8324-83dfff5bfe33" sourceFile="C:\Program Files\Common Files\Micro
</mergedActions>
<BlobCache location="C:\BlobCache\14" path="\. (gif|jpg|jpeg|jpe|jfif|bmp|dib|tif|tiff|ico|png|wdp|h
<ObjectCache maxSize="100" />
<OutputCacheProfiles useCacheProfileOverrides="false" varyByHeader="" varyByParam="*" varyByCustom=
<RuntimeFilter Assembly="Microsoft.Office.Server, Version=14.0.0.0, Culture=neutral, PublicKeyToken=
</SharePoint>
<system.web>
  <securityPolicy>
    <trustLevel name="WSS_Medium" policyFile="C:\Program Files\Common Files\Microsoft Shared\Web Serv
    <trustLevel name="WSS_Minimal" policyFile="C:\Program Files\Common Files\Microsoft Shared\Web Ser
  </securityPolicy>
  <httpHandlers />
  <customErrors mode="On" />
  <httpRuntime maxRequestLength="51200" />
  <authentication mode="Windows" />
  <identity impersonate="true" />
  <authorization>
    <allow users="*" />
  </authorization>
  <httpModules />
  <globalization fileEncoding="utf-8" />
```

Default BlobCache Attributes

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MOSS 2007

```
<BlobCache location="C:\blobCache" path="\.(gif|jpg|png|css|js)$" maxSize="10" enabled="false" />
```

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MOSS 2007

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<BlobCache location="C:\blobCache" path=".(gif|jpg|png|css|js)$" maxSize="10" enabled="false" />
```

SharePoint Server 2010

```
<BlobCache location="C:\BlobCache\14" path=".(gif|jpg|jpeg|jpe|jfif|bmp|dib|tif|tiff|ico|png|wdp|hdp|css|js|asf|avi|flv|m4v|mov|mp3|mp4|mpeg|mpg|rm|rmvb|wma|wmv)$" maxSize="10" enabled="false" />
```


Available Attributes

Available Attributes

Common

enabled	true if the BLOB cache is turned-on, false if not
location	path to location in file system where cached items will be stored
path	regular expression against which files must match in order to be cached
size	maximum disk space (in GB) that BLOB cache can consume
max-age	client-side cache duration (in seconds) for downloaded BLOB cache items

Side note: to be BLOB
cached, a file must be a
document in a Document
Library or a list item
attachment. "Loose files"
won't be cached.

Available Attributes

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max-age	client-side cache duration (in seconds) for downloaded BLOB cache items

Recommendation:
point at someplace
other than C:

Recommendation: make
sure you add up your
allocations (each site)
and have enough disk
space!

Available Attributes

Common

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Uncommon (as in "nearly never altered")

changeCheckInterval	the interval (in seconds) for checks to content DBs for new(er) BLOB cache items (5s default)
policyCheckInterval	the interval (in seconds) on which the BLOB cache settings themselves will be re-parsed (60s default)

DO NOT simply
delete files out of
the BLOB cache!

Uncommo

changeCh

policyCh

Available Attributes

Common

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Now, for a
word about
the MAX-AGE
attribute ...



max-age in action: initial request (non-zero max-age value)

max-age in action: initial request (non-zero max-age value)

Web Sessions						
#	Result	Protocol	URL	Body	Caching	
64	200	HTTP	/SiteCollectionImages/common/content...	79	public, max-age=2232	image/gif
65	200	HTTP	/SiteCollectionImages/common/btnNoTh...	2,112	public, max-age=2478	image/gif
66	200	HTTP	/SiteCollectionImages/common/signinOv...	165	public, max-age=4707	image/png
67	200	HTTP	/SiteCollectionImages/common/benefits...	16,907	public, max-age=5791	image/png
68	200	HTTP	/_controltemplates/MultiBanner/ModalP...	15,618	max-age=867	image/png
69	302	HTTP	/s/www.kroger.com?U=/SiteCollectionI...	0	max-age=0, no-cache, no-store Expires: Sun, 03 Apr 201...	
70	200	HTTP	/SiteCollectionImages/common/160x41...	5,099	public, max-age=2141	image/jpeg
71	200	HTTP	/PublishingImages/section_headers/hea...	4,538	public, max-age=1452	image/jpeg
72	200	HTTP	/PublishingImages/2011/Period_3/Week...	73,370	public, max-age=1320	image/jpeg
73	200	HTTP	/PublishingImages/2011/Period_3/Week...	77,412	public, max-age=944	image/jpeg
74	200	HTTP	/PublishingImages/2011/Period_3/Week...	52,993	public, max-age=1307	image/jpeg
75	200	HTTP	/_layouts/1033/core.js?rev=mHKsOQ0i...	265,384	max-age=2908	application/x-javascript
76	200	HTTP	/style%20library/omniture/s_code_krog...	20,172	public, max-age=2590	application/x-javascript
77	200	HTTP	/SiteCollectionImages/common/closeBtn...	879	public, max-age=4795	image/gif
78	200	HTTP	/SiteCollectionImages/icons/icon_import...	1,287	public, max-age=2785	image/gif
79	200	HTTP	/iframe.php?targeting_bucket=Banner_...	6,147	max-age=300, max-age=600 Expires: Sun, 03 Apr 2011 2...	text/html; charset=utf-8
80	200	HTTP	/adj/fmw.kroger.www/?page=home_ma...	571	private Expires: Sun, 03 Apr 2011 20:13:57 GMT	application/x-javascript
81	200	HTTP	/SiteCollectionImages/common/boxBg_...	82	public, max-age=767	image/gif
82	200	HTTP	/SiteCollectionImages/common/boxTop...	923	public, max-age=388	image/gif
83	200	HTTP	/includes/css/iframe.css	1,603	max-age=2592000 Expires: Tue, 03 May 2011 20:11:19 GMT	text/css
84	200	HTTP	/images/generic_header.png	10,978	max-age=2592000 Expires: Tue, 03 May 2011 20:11:16 GMT	image/png
85	200	HTTP	/srv/upload_files/fea90f098a8b8d3401...	5,744	max-age=2592000 Expires: Tue, 03 May 2011 20:09:42 GMT	image/gif
86	200	HTTP	/images/coupon-pointer.png	1,952	max-age=2592000 Expires: Tue, 03 May 2011 20:09:02 GMT	image/png
87	200	HTTP	/srv/upload_files/acdf9eb5cc1b4b75e4...	5,985	max-age=2592000 Expires: Tue, 03 May 2011 20:11:19 GMT	image/gif
88	200	HTTP	/srv/upload_files/46263a8ea7a6c1251a...	4,942	max-age=2592000 Expires: Tue, 03 May 2011 20:11:19 GMT	image/gif
89	200	HTTP	/srv/upload_files/5467f518013f109e51...	5,241	max-age=2592000 Expires: Tue, 03 May 2011 20:11:19 GMT	image/gif
90	200	HTTP	/siteCollectionImages/swf/heroHomepa...	105,036	public, max-age=5897	application/x-shockwave-flash
91	200	HTTP	/PublishingImages/2011/Period_3/Week...	164,821	public, max-age=1546	image/jpeg
92	200	HTTP	/PublishingImages/2011/Period_3/Week...	153,151	public, max-age=1863	image/jpeg
93	200	HTTP	/PublishingImages/2011/Period_3/Week...	118,575	public, max-age=1894	image/jpeg
94	200	HTTP	/SiteCollectionImages/common/signinOv...	594	public, max-age=5181	image/png
95	200	HTTP	/SiteCollectionImages/common/bgSignI...	434	public, max-age=5094	image/gif
96	200	HTTP	/SiteCollectionImages/common/signinOv...	470	public, max-age=1584	image/png
97	200	HTTP	/SiteCollectionImages/common/benefits...	250	public, max-age=2539	image/png
98	200	HTTP	/SiteCollectionImages/common/benefits...	10,762	public, max-age=5053	image/png
99	200	HTTP	/SiteCollectionImages/common/benefits...	939	public, max-age=6742	image/gif
100	200	HTTP	/SiteCollectionImages/common/benefits...	1,428	public, max-age=5869	image/gif
101	200	HTTP	/SiteCollectionImages/common/benefits...	1,508	public, max-age=1087	image/gif
102	200	HTTP	/SiteCollectionImages/common/benefits...	1,472	public, max-age=5494	image/gif
103	200	HTTP	/SiteCollectionImages/common/benefits...	1,496	public, max-age=4800	image/gif
104	200	HTTP	/_controltemplates/MultiBanner/ModalP...	1,386	max-age=1776	image/gif
105	200	HTTP	/SiteCollectionImages/common/benefits...	1,511	public, max-age=6492	image/gif
106	200	HTTP	/2934496/2of3_tr1_Mars_GC.jpg	137,333	public, max-age=86400 Expires: Mon, 04 Apr 2011 04:05:...	image/jpeg
107	200	HTTP	/PublishingImages/section_headers/hea...	3,922	public, max-age=1000	image/jpeg
108	200	HTTP	/SiteCollectionImages/common/footer_...	1,401	public, max-age=4232	image/gif
109	200	HTTP	/SiteCollectionImages/common/footerL...	54	public, max-age=1035	image/gif
110	200	HTTP	/SiteCollectionImages/common/boxBot...	838	public, max-age=1818	image/gif
111	200	HTTP	/SiteCollectionImages/common/content...	5,785	public, max-age=1121	image/jpeg
113	302	HTTP	/b/ss/krgkrogerprod/1/H.14/s2205936...	0	no-cache, no-store, must-revalidate, max-age=0, proxy-re...	text/plain
114	200	HTTP	/SiteCollectionImages/common/bgSelect...	654	public, max-age=6811	image/gif
115	200	HTTP	/b/ss/krgkrogerprod/1/H.14/s2205936...	43	no-cache, no-store, must-revalidate, max-age=0, proxy-re...	image/gif

115 HTTP requests issued and answered to fully load page

max-age in action: subsequent request (re-opened browser)

max-age in action: subsequent request (re-opened browser)



#	Result	Protocol	URL	Body	Caching	Content-Type
1	302	HTTP	/	163		text/html
2	200	HTTP	/Pages/default.aspx	81,746	private Expires: Sun, 03 Apr 2011 20:23:34 GMT	text/html; charset=utf-8
3	200	HTTP	/adj/mw1.kroger.www;/page=home_ma...	571	private, x-gzip-ok="" Expires: Sun, 03 Apr 2011 20:16:05 ...	application/x-javascript
4	200	HTTP	/b/ss/krgrkrogerprod/1/H.14/s2656257...	43	no-cache, no-store, must-revalidate, max-age=0, proxy-re...	image/gif

Only 4 requests
needed to load
the page

max-age in action: subsequent request (re-opened browser)

Web Sessions						
#	Result	Protocol	URL	Body	Caching	Content-Type
1	302	HTTP	/	163		text/html
2	200	HTTP	/Pages/default.aspx	81,746	private Expires: Sun, 03 Apr 2011 20:23:34 GMT	text/html; charset=utf-8
3	200	HTTP	/adj/mwl.kroger.www;/page=home_ma...	571	private, x-gzip-ok="" Expires: Sun, 03 Apr 2011 20:16:05 ...	application/x-javascript
4	200	HTTP	/b/ss/krgkrogerprod/1/H.14/s2656257...	43	no-cache, no-store, must-revalidate, max-age=0, proxy-re...	image/gif

Only 4 requests needed to load the page

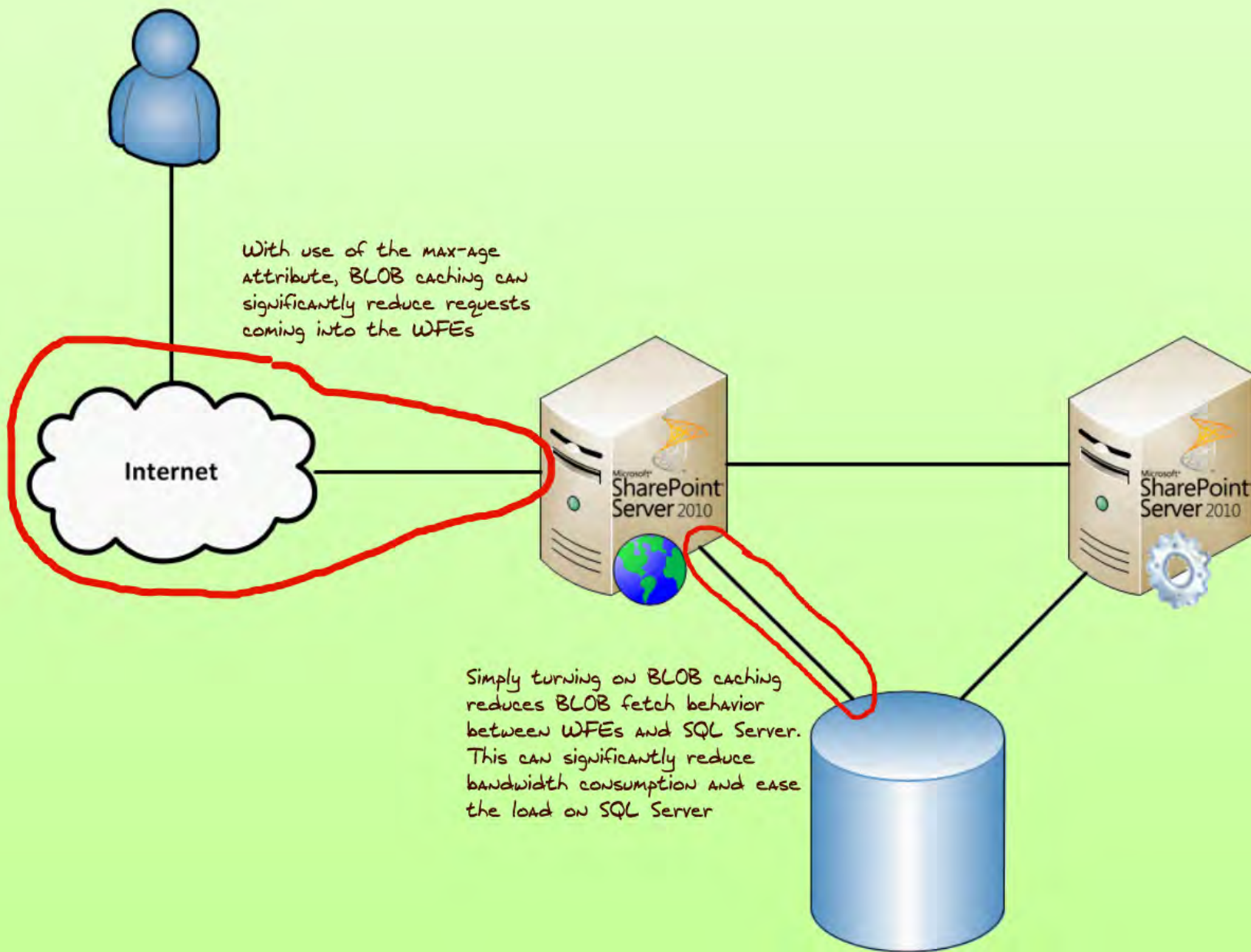


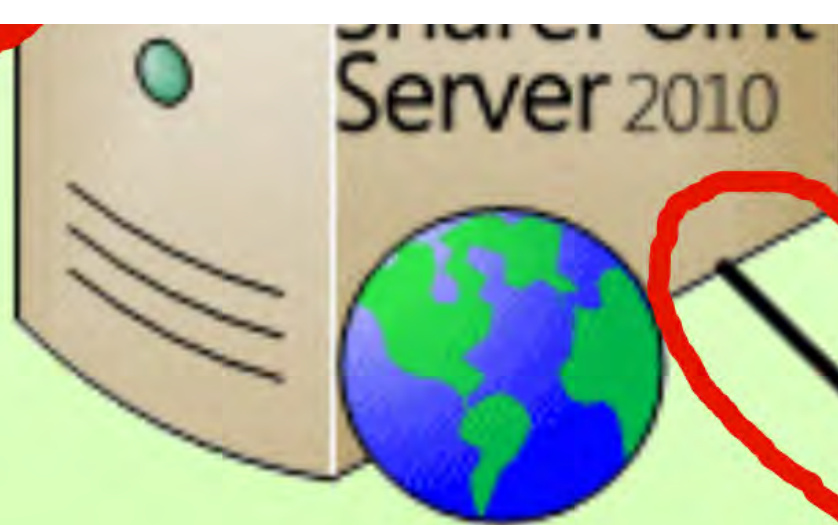
Of course, this behavior CAN work both for you AND AGAINST you ...



Of course, this behavior
CAN work both for you
AND AGAINST you ...

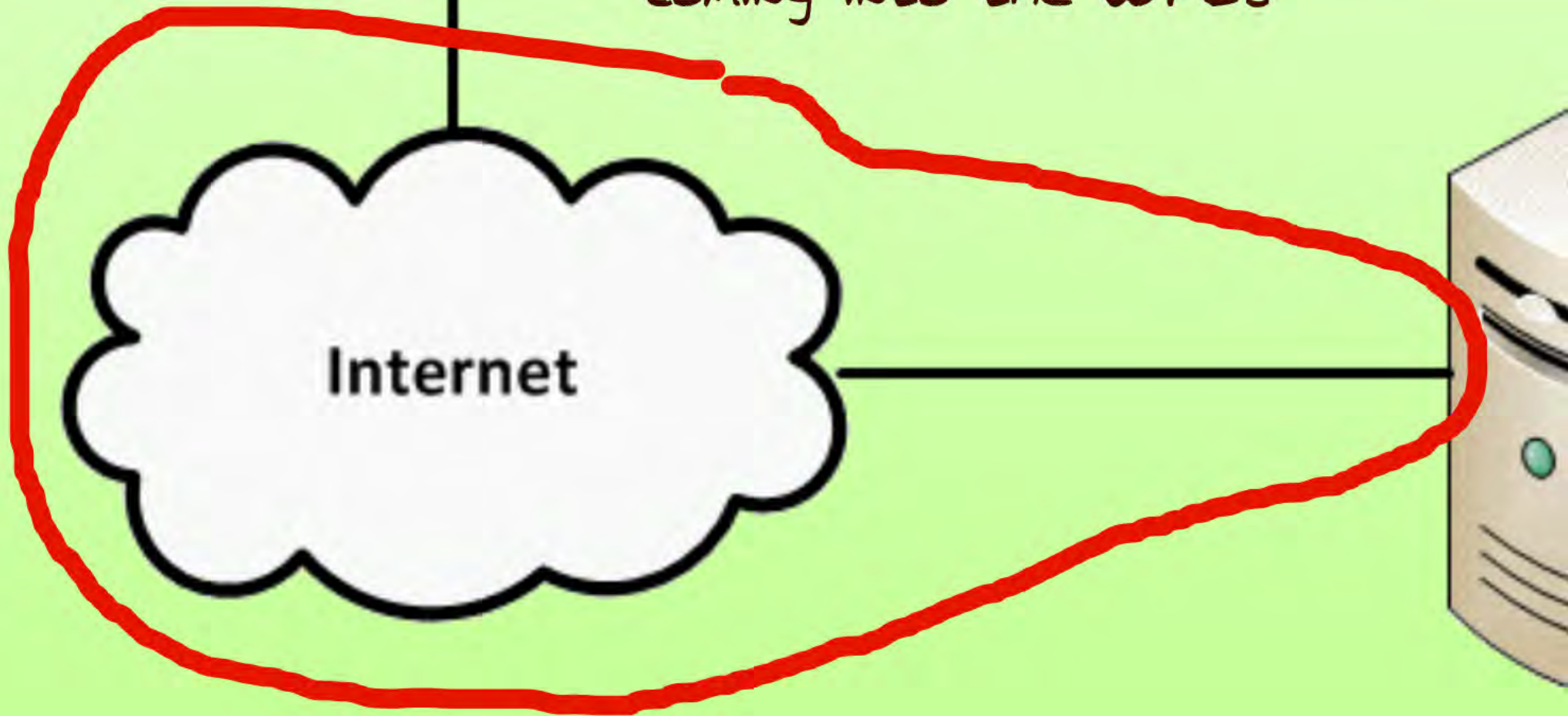
If you don't want persistent client-side caching, be sure to specify a max-age value of zero (0). If you don't specify a value, the default is 86,400 seconds (24 hours).

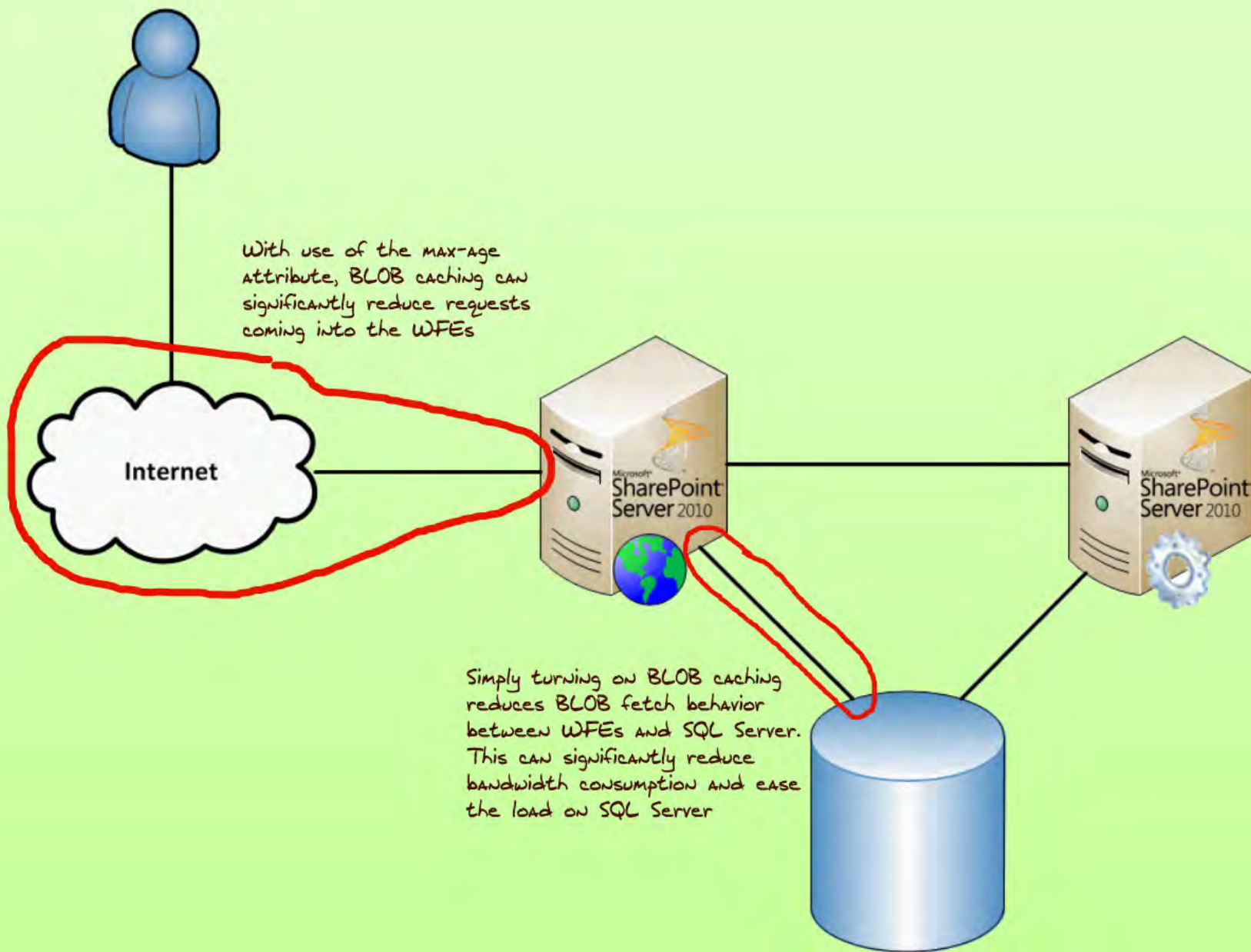




Simply turning on BLOB caching reduces BLOB fetch behavior between WFES AND SQL Server. This can significantly reduce bandwidth consumption AND ease the load on SQL Server

With use of the MAX-AGE attribute, BLOB caching can significantly reduce requests coming into the WFEs





Next up...

Next up...



Page output
caching

Next up...



Page output caching

piggybacks on ASP.NET output caching



http://spdev:18480/Pages/default.aspx



~~My SharePoint Site~~

~~SPDC\me~~

Site Actions ~~?~~ ~~?~~

Search this site.. ~~?~~

I'll talk about the reason for highlighting this a little later. For now, though, we'll just say "it isn't covered by page output caching."

Top-Level Site > My SharePoint Site

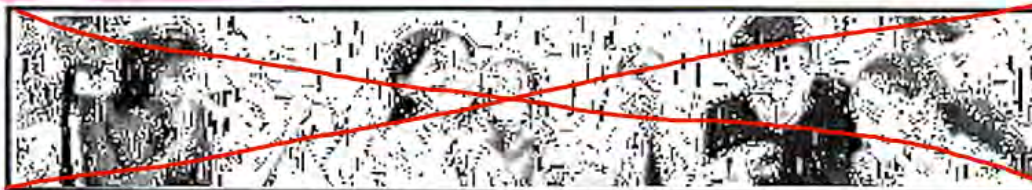
Home

My SharePoint Site

Your SharePoint Site

Another Site

Welcome Back, Bob!



It's easier to simply put red X's through the content and items that aren't covered by page output caching.



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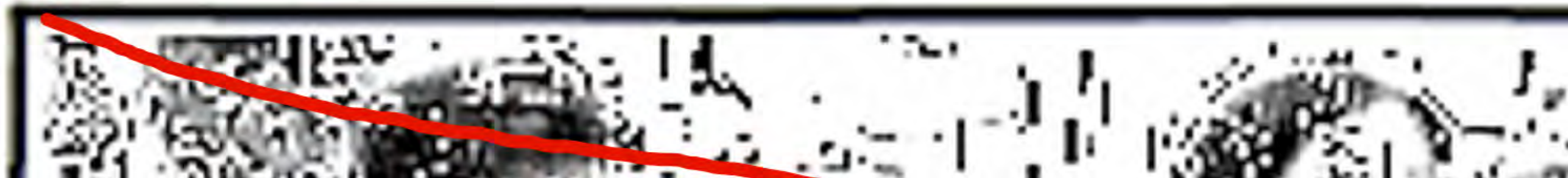
The weather started

It's easier to simply put red X's through the content and items that aren't covered by page output caching.

Print Site

I'll talk about the reason for highlighting this a little later. For now, though, we'll just say "it isn't covered by page output caching."

Welcome Back, Bob!





http://spdev:18480/Pages/default.aspx



~~My SharePoint Site~~

~~SPDC\me~~

Site Actions ~~?~~ ~~?~~

Search this site.. ~~?~~

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Top-Level Site > My SharePoint Site

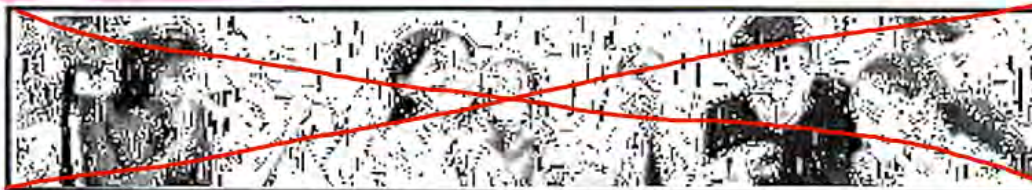
Home

My SharePoint Site

Your SharePoint Site

Another Site

Welcome Back, Bob!



It's easier to simply put red X's through the content and items that aren't covered by page output caching.



It is by will alone I set my mind in motion.

It is by the juice of Sapho that thoughts acquire speed, the lips acquire stains, the stains become a warning.

It is by will alone I set my mind in motion.

Just sit right back and you'll hear a tale, a tale of a fateful trip, That started from this tropic port, aboard this tiny ship. The mate was a mighty sailin' man, the Skipper brave and sure. Five passengers set sail that day for a three hour tour. A three hour tour.

The weather started

Page output caching

Page output caching

Backed by memory



Page output caching

Backed by memory



Turned off by default
(thankfully)



Page output caching

Backed by memory



Turned off by default
(thankfully)



Default size or allocation

*None**

Page output caching

Backed by memory



Turned off by default
(thankfully)



Default size or allocation

*None**

A new trick that comes with SharePoint 2010 ...


```
<Action id="0ff1ce14-101d-0000-0000-000000000000" sourceFile="C:\Program Fi
<Action id="0ff1ce14-101e-0000-0000-000000000000" sourceFile="C:\Program Fi
<Action id="0ff1ce14-1020-0000-0000-000000000000" sourceFile="C:\Program Fi
<Action id="0ff1ce14-1021-0000-0000-000000000000" sourceFile="C:\Program Fi
<Action id="ec0076ac-0c35-4880-8422-8062f5925bec" sourceFile="C:\Program Fi
<Action id="602bc8c3-9286-49a3-b973-3376ca78b297" sourceFile="C:\Program Fi
<Action id="00e22a78-33ff-41ac-b0fb-ee46d1636e22" sourceFile="C:\Program Fi
<Action id="4b60e42e-e6fc-4188-80d2-ef39e7cc0065" sourceFile="C:\Program Fi
<Action id="1d415973-1146-4bc2-8324-83dfff5bfe33" sourceFile="C:\Program Fi
</MergedActions>
<BlobCache location="C:\BlobCache\14" path="\.(gif|jpg|jpeg|jpe|jfif|bmp|dib|
<ObjectCache maxSize="100" />
<OutputCacheProfiles useCacheProfileOverrides="false" varyByHeader="" varyByP
<RuntimeFilter Assembly="Microsoft.Office.Server, Version=14.0.0.0, Culture=n
</SharePoint>
<system.web>
  <securityPolicy>
    <trustLevel name="WSS_Medium" policyFile="C:\Program Files\Common Files\Mic
    <trustLevel name="WSS_Minimal" policyFile="C:\Program Files\Common Files\Mi
  </securityPolicy>
  <httpHandlers />
  <customErrors mode="On" />
  <httpRuntime maxRequestLength="51200" />
  <authentication mode="Windows" />
  <identity impersonate="true" />
  <authorization>
```


So



So ...

How's this page
output caching
thing work,
ANYWAY?



The Page Output Cache
is like a big lookup table

The Page Output Cache is like a big lookup table

Each page request is broken down into a set of characteristics

- Characteristics are selected based on page output cache profiles
- These characteristics (browser type, page requested, etc.) are used to build a key

Notice I said request.
The actual page that is rendered has no bearing on how items are cached or served from cache.



The Page is like a big

Each page request is

- Characteristics are set
- These characteristics

The cache

- If a

The Page Output Cache is like a big lookup table

Each page request is broken down into a set of characteristics

- Characteristics are selected based on page output cache profiles
- These characteristics (browser type, page requested, etc.) are used to build a key

The cache is searched for a page with the key that was built

- If a page with the same key is found, it is returned from the cache.
- If no match is made, the page is rendered and served back. It is then cached for subsequent requests until it is expired out of the cache or ejected for other reasons.

The Page Output Cache is like a big lookup table

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- If no match is made, the page is rendered and served back. It is then cached for subsequent requests until it is expired out of the cache or ejected for other reasons.

The trick is to balance profile granularity against memory consumption

Configuring Page Output Caching



A quick tour

Sean P. McDonough > Site Settings

Sean P. McDonough Press Releases

Press Releases

- Recycle Bin
- All Site Content

Users and Permissions
People and groups
Site permissions
Site collection administrators

Galleries
Site columns
Site content types
Web parts
List templates
Master pages and page layouts
Themes
Solutions

Site Administration
Regional settings
Site libraries and lists
User alerts
RSS
Search and offline availability
Sites and workspaces
Workflows
Workflow settings
Site output cache
Term store management
Content and structure
Searchable columns
Content and structure logs

Site Collection Administration
Search settings
Search scopes
Search keywords
Recycle bin
Site collection features
Site hierarchy
Site collection navigation
Site collection audit settings
Portal site connection
Site collection policies
Content type publishing
Site collection cache profiles
Site collection output cache
Site collection object cache
Variations
Variation labels
Variation logs
Translatable columns
Suggested Content Browser Locations
SharePoint Designer Settings
Visual Upgrade
Help settings

Look and Feel
Welcome Page
Title, description, and icon
Master page
Page layouts and site templates
Tree view
Site theme
Navigation

Site Actions
Manage site features
Reset to site definition
Delete this site
Site Web Analytics reports
Site Collection Web Analytics reports

Reporting Services
Manage Shared Schedules
Reporting Services Site Settings

Site Information

Site URL:
<http://www.spmcdonough.com/>
Mobile Site URL:
<http://www.spmcdonough.com/?Mobile=1>

Recycle Bin

Site collection features

Site hierarchy

Site collection navigation

Site collection audit settings

Portal site connection

Site collection policies

Content type publishing

Site collection cache profiles

Site collection output cache

Site collection object cache

Variations

Variation labels

Variation logs

Translatable columns

Suggested Content Browser Locations

SharePoint Designer Settings

Sean P. McDonough > Cache Profiles > All Items
This system list was created by the Publishing Resources feature to store profiles for configuring caching in your site.

Sean P. McDonough | Press Releases | Search this site...

- Press Releases
- Recycle Bin
- All Site Content

Title
Disabled
Public Internet (Purely Anonymous)
Extranet (Published Site)
Intranet (Collaboration Site)

+ Add new item

em list was created by the Publishing Resources feature to store profile

ugh

Press Releases



Title

Disabled



Public Internet (Purely Anonymous)

Extranet (Published Site)

Intranet (Collaboration Site)

 Add new item

Site Actions + Browse

Version History, Item Permissions, Attach File, Alert Me, Workflows, Alerts/Feed, Like It, Tagged Notes

New Item, New Folder, New Item, Edit Item, Delete Item, Manage, Actions, Share & Track, Workflows, Tagged Notes

- Press Released
 - Recycle bin
 - All Site Content
- Help new item

Cache Profiles - Public Internet (Purely Anonymous)

View

Version History, Alert Me, Manage Permissions, Delete Item

Manage Actions

Title	Public Internet (Purely Anonymous)
Display Name	
Display Description	Optimized for public Internet facing sites or areas that are meant to serve the same content to all users. No authentication check is done and any user requesting a page receives the same page as any other user.
Perform ACL Check	No
Enabled	Yes
Duration	180
Check for Changes	No
Vary by Custom Parameter	Browser
Vary by HTTP Header	
Vary by Query String Parameters	
Vary by User Rights	
Cacheability	ServerAndPrivate
Safe for Authenticated Use	No
Allow writers to view cached content	

Content Type: Page Output Cache
 Created at 3/26/2011 2:27 PM by System Account
 Last modified at 3/26/2011 2:27 PM by System Account

Close



Edit Item



Version History



Manage Permissions



Delete Item

Manage



Alert Me

Actions

Title	Public Internet (Purely Anonymous)
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Sean P. McDonough > Site Settings

Sean P. McDonough Press Releases

Press Releases

- Recycle Bin
- All Site Content

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[Site collection navigation](#)

[Site collection audit settings](#)

[Portal site connection](#)

[Site collection policies](#)

[Content type publishing](#)

[Site collection cache profiles](#)

[Site collection output cache](#)

[Site collection object cache](#)

[Variations](#)

[Variation labels](#)

[Variation logs](#)

[Translatable columns](#)

[Suggested Content Browser List](#)

Site Collection Administration > Output Cache Settings

Configure site-wide cache settings.

Sean P. McDonough

Press Releases

Search this site...

Press Releases

Output Cache

Select the **Enable output cache** check box to enable output caching in this site collection.

Enable output cache

Recycle Bin
All Site Content

Default Page Output Cache Profile

A cache profile specifies how long items should be held in the cache. It also describes to the caching system how to determine whether a cached page element is in fact valid for other requests for the same element from different users. You can specify different cache profiles to use for anonymous and authenticated users. This optimizes the use of the cache based on the authentication methods allowed on the site. Page output cache profiles specifically affect portal publishing pages. [Learn more about the default page output cache profile.](#)

Anonymous Cache Profile

- Disabled
- Disabled**
- Public Internet (Purely Anonymous)
- Extranet (Published Site)
- Intranet (Collaboration Site)

Selected Anonymous Cache Profile

Caching is not enabled

Page Output Cache Policy

You can allow administrators and page layout designers to choose a different page output cache profile from the profile specified above.

Publishing Sites:

Publishing sites can use a different page output cache profile

Page Layouts:

Page layouts can use a different page output cache profile

Debug Cache Information

Select the check box to enable the display of additional cache information on pages in this site collection. This includes the date and time that page contents were last rendered.

Enable debug cache information on pages

OK

Cancel

Anonymous Cache Profile

Disabled

Disabled

Public Internet (Purely Anonymous)

Extranet (Published Site)

All Intranet (Collaboration Site)

Select

Disabled

Caching is not enabled

Disabled



Caching is not enabled

Publishing Sites:

- Publishing sites can use a different page output cache profile

Page Layouts:

- Page layouts can use a different page output cache profile

- Enable the use of the information...

Page Layouts:

Page layouts can use a different page output cache p

Enable debug cache information on pages

OK

Cancel

[Search this site.](#)

[Enable output cache](#)

[Anonymous Cache Profile](#)



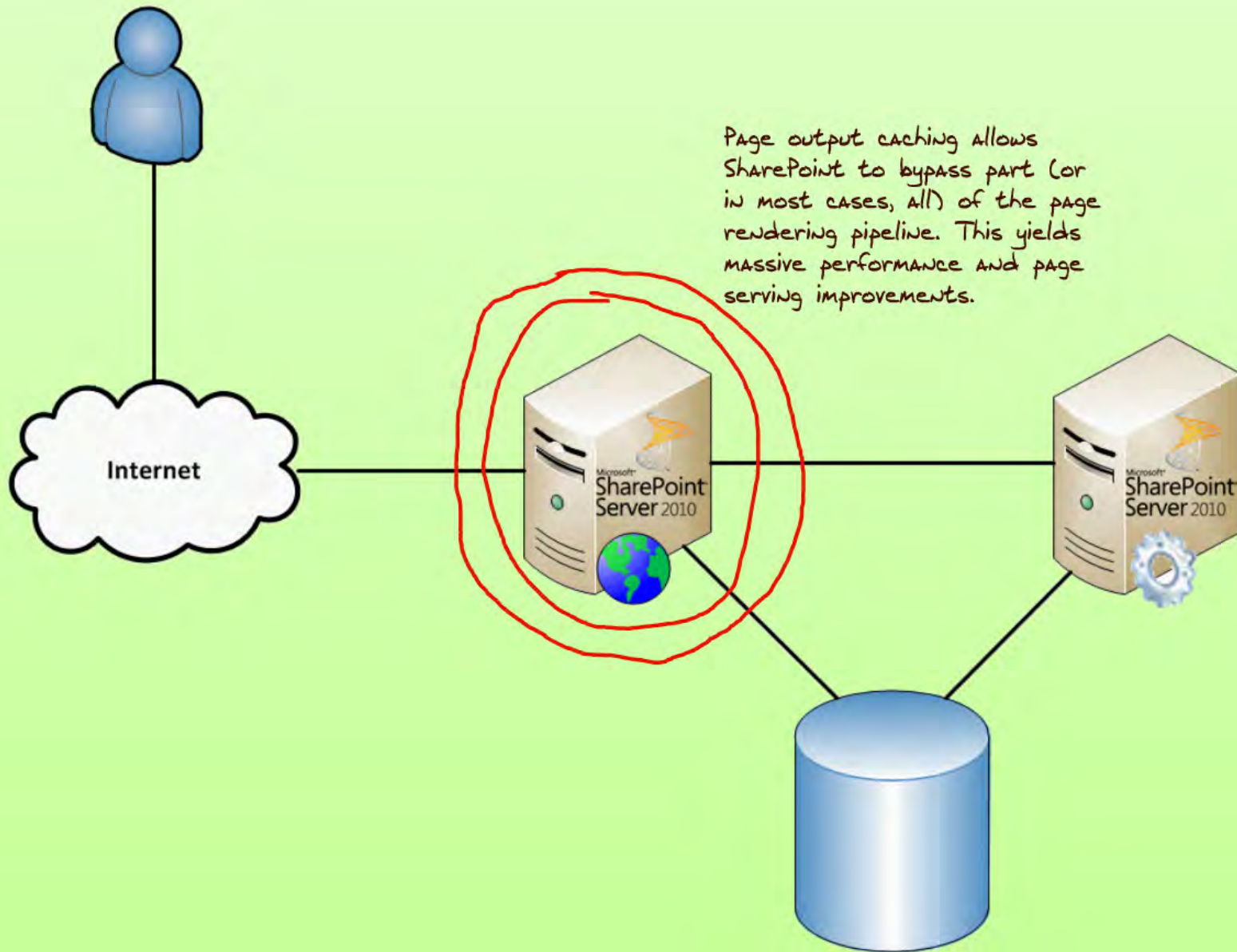
You really, really, **really** need to do concurrent multi-user testing with your caching settings!



You really, really, *really* need to do concurrent multi-user testing with your caching settings!

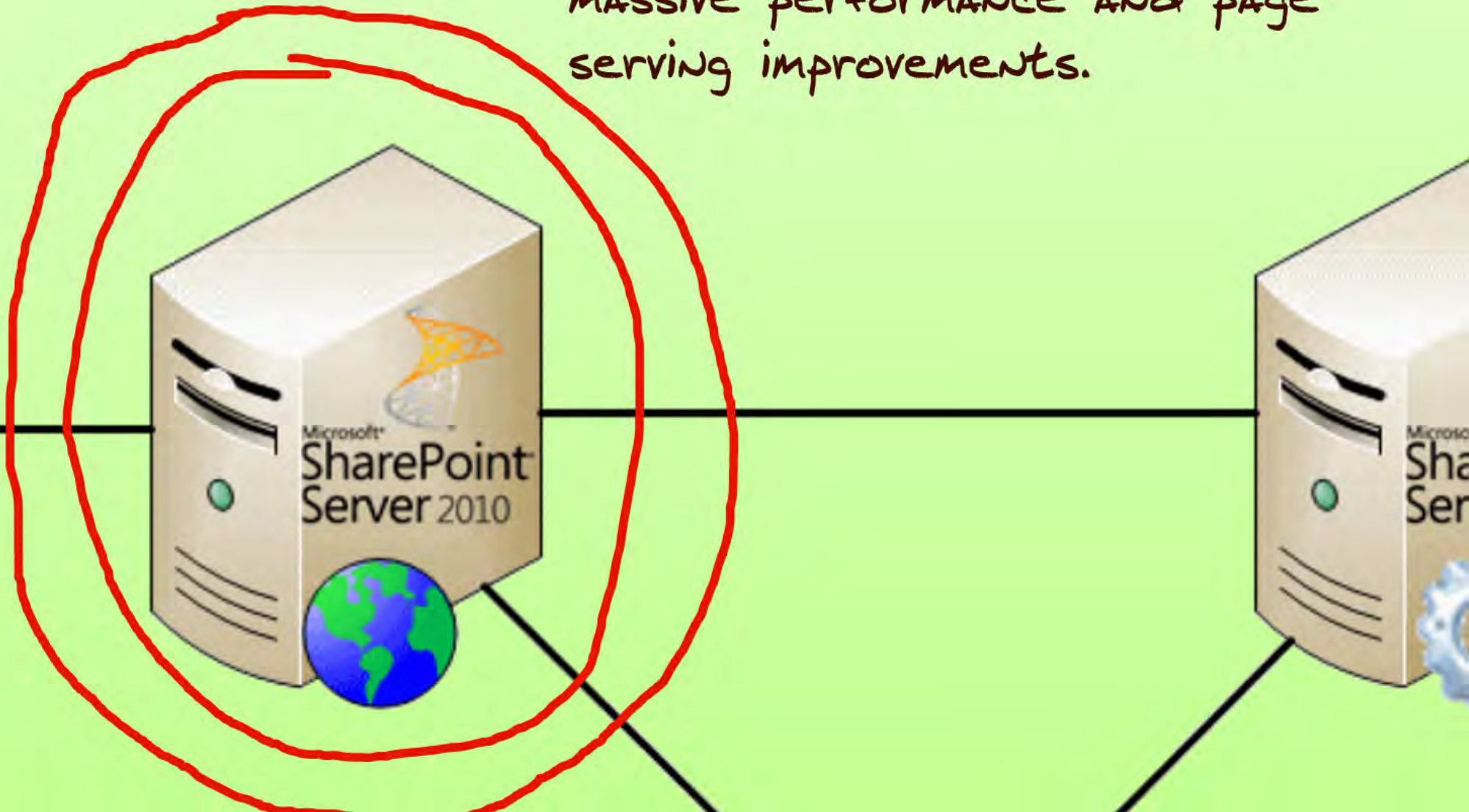


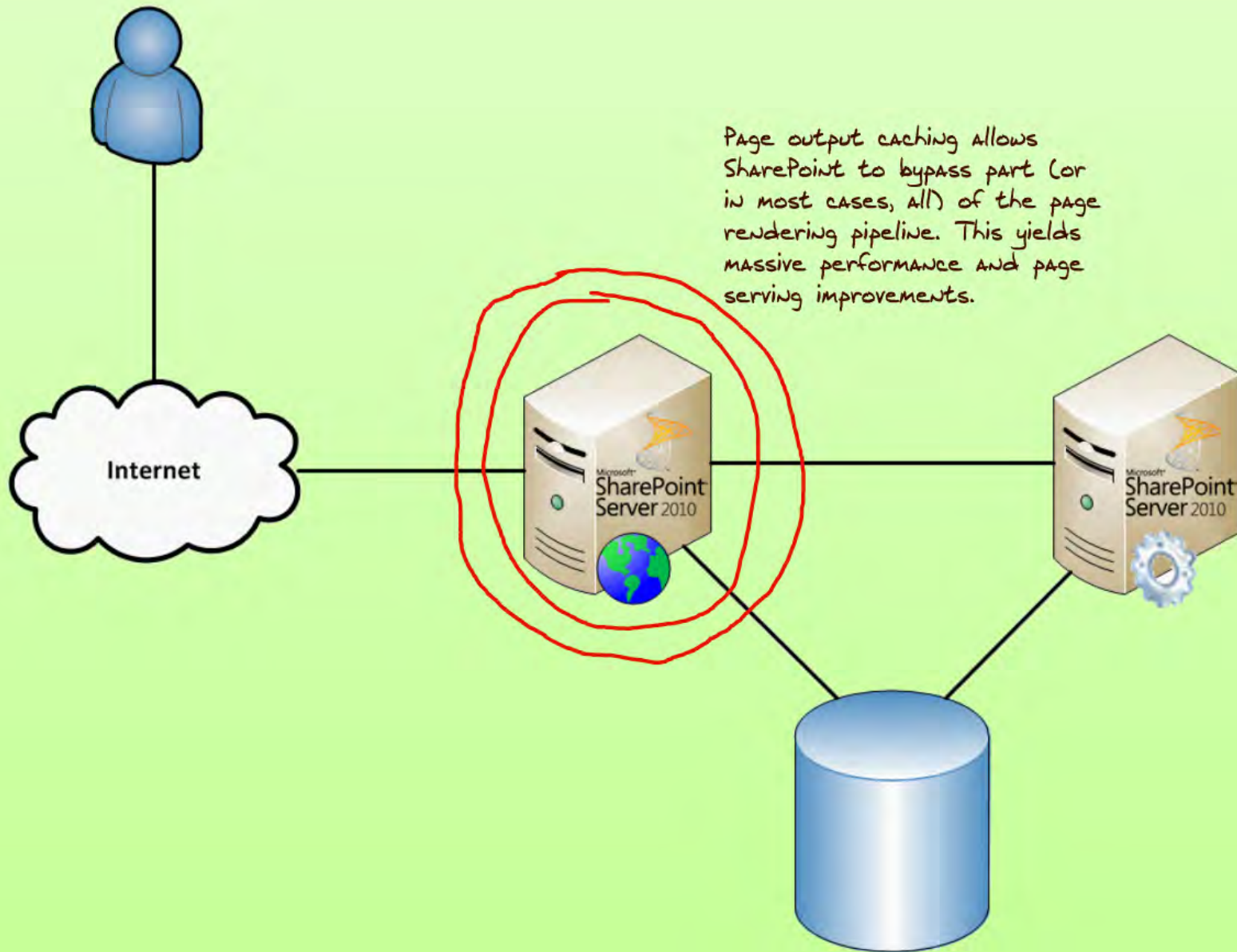
Do you sense a story coming?



Page output caching allows SharePoint to bypass part (or in most cases, all) of the page rendering pipeline. This yields massive performance and page serving improvements.

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And finally

And finally



Office Web
Apps Cache



SharePoint 2010 Only!



SharePoint 2010 Only!



Houses images, XAML (eXtensible Application Markup Language), etc, that is generated so documents can be viewed and edited via browser.





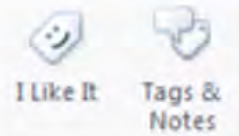
SharePoint 2010 Only!



Houses images, XAML (eXtensible Application Markup Language), etc, that is generated so documents can be viewed and edited via browser.



How it works under the hood ...



- Central Administration
- Application Management
- System Settings
- Monitoring
- Backup and Restore
- Security
- Upgrade and Migration
- General Application Settings
- Configuration Wizards


URL Search

Web Application:

URL	http://spdev:18480/sites/Office_Viewing_Service_Cache
Title	Team Site
Description	
Primary administrator:	SPDC\s0ladmin
E-mail address:	
Database Name	WSS_Content_PublishingTestWeb

[/sites/Office_Viewing_Service_Cache](#)

OK Cancel


Site Actions  SPDC\s0ladmin

Microsoft SharePoint 2010 Central Administration ▶ Site Collection List

I Like It Tags & Notes

Central Administration

- Application Management
- System Settings
- Monitoring
- Backup and Restore
- Security
- Upgrade and Migration
- General Application Settings
- Configuration Wizards

URL Search  Web Application:

URL	http://spdev:18480/sites/Office_Viewing_Service_Cache
Title	Team Site
Description	
Primary administrator:	SPDC\s0ladmin
E-mail address:	
Database Name	WSS_Content_PublishingTestWeb

OK Cancel

- standard Team Site (site collection)
- each Web application gets one
- can grow to 100 GB in size (by default)
- 30 day content expiration period (by default)

Recommendations

Recommendations



Get friendly with
Set-OfficeSPWebAppsCache
PowerShell cmdlet

Recommendations



Get friendly with
Set-OfficeSPWebAppsCache
PowerShell cmdlet

- relocate cache to a dedicated content DB

Recommendations



Get friendly with
Set-OfficeSPWebAppsCache
PowerShell cmdlet

- relocate cache to a dedicated content DB
- increase cache size and expiration for Web applications housing static documents
- decrease cache size and expiration for Web applications housing dynamic or highly collaborative Office documents

I've got some scripting help for you on these two items ...

- relocate
- increase ca
- applications
- decrease ca
- applicati
- coll

Recommendations



Get friendly with
Set-OfficeSPWebAppsCache
PowerShell cmdlet

- relocate cache to a dedicated content DB
- increase cache size and expiration for Web applications housing static documents
- decrease cache size and expiration for Web applications housing dynamic or highly collaborative Office documents

permissions to content DBs (service App acct)!

QUIN



DON'T PANIC - JUST FOR FUN!

Object caching

Object caching

Action

Cache size reduced (significantly) below 100MB

Potential Result

Object caching

Action

Cache size reduced (significantly) below 100MB

Potential Result

- Object cache fills and becomes memory constrained
- Resource contention and ejections lead to cache compactions
- Under heavy load, compaction process leads to thrashing
- SharePoint's ability to serve pages falls through the floor

Object caching

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- SharePoint's ability to serve pages falls through the floor

What to Watch

- Publishing Cache Hit Ratio performance counter
- Total Number Of Cache Compactions performance counter

Object caching

Object caching

Observation

A publishing site is established in a Web application that is using claims-based authentication. "Access Denied" errors keep appearing - even for site administrators.

Potential Cause

Object caching

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- The default Portal Super User and Portal Super Reader Object Cache accounts are in-use for the Web application

Object caching

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A publishing site is established in a Web application that is using claims-based authentication. "Access Denied" errors keep appearing - even for site administrators.

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- The default Portal Super User and Portal Super Reader Object Cache accounts are in-use for the Web application

What You Can Do

- Set up new user accounts, establish Web application policies for those accounts, and run some simple PowerShell commands to map the accounts.

Page output caching

Page output caching

Observation

User A requests a page. User B requests the same page.
User B sees information tied to User A.

Potential Cause

Page output caching

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User A requests a page. User B requests the same page.
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Potential Cause

- Page output cache profile isn't granular enough to distinguish User A from User B

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What You Can Do

- Refine the cache profile in-use (use additional attributes)
- Set caching exclusions by sub-site or page layout type
- Use post-cache substitution (donut caching) in custom code
- Leverage a custom caching handler (IVaryByCustomHandler)



http://spdev:18480/Pages/default.aspx



~~My SharePoint Site~~

~~SPDC\me~~

Site Actions ~~?~~ ~~?~~

Search this site.. ~~?~~

I'll talk about the reason for highlighting this a little later. For now, though, we'll just say "it isn't covered by page output caching."

Top-Level Site > My SharePoint Site

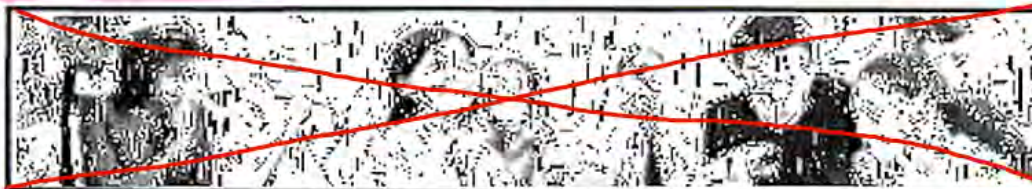
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The weather started

Page output caching

Observation

User A requests a page. User B requests the same page.
User B sees information tied to User A.

Potential Cause

- Page output cache profile isn't granular enough to distinguish User A from User B

What You Can Do

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Page output caching

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Observation

Memory consumption of ASP.NET worker process grows significantly over time; performance may deteriorate.

Potential Cause

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Potential Cause

- Page output caching profile is overly granular and too many pages are being cached causing excessive memory load.

Page output caching

Observation

Memory consumption of ASP.NET worker process grows significantly over time; performance may deteriorate.

Potential Cause

- Page output caching profile is overly granular and too many pages are being cached causing excessive memory load.

What You Can Do

- Adjust caching profiles if possible to reduce page load.
- Selectively disable caching for highly varying sub-sites.
- Adjust cache element values in web.config that controls ASP.NET worker process (e.g., `privateBytesLimit` attribute)

BLOB caching

BLOB caching

Observation

Path property is set correctly, location is set correctly, but images stored in site collection aren't being cached.

Potential Cause

BLOB caching is not enabled for the site collection.

BLOB caching

Observation

Path property is set correctly, location is set correctly, but images stored in site collection aren't being cached.

Potential Cause

- BLOB cache only works with resources that are stored as list items in lists or document libraries.

BLOB caching

Observation

Path property is set correctly, location is set correctly, but images stored in site collection aren't being cached.

Potential Cause

- BLOB cache only works with resources that are stored as list items in lists or document libraries.

What You Can Do

- Leverage built-in libraries such as Site Collection Images.
- Move resources to a custom list.

BLOB caching

BLOB caching

Observation

Image is changed on a SharePoint site. Some client browsers show new image while others show the old image.

Potential Cause

BLOB caching

Observation

Image is changed on a SharePoint site. Some client browsers show new image while others show the old image.

Potential Cause

- A high max-age attribute (such as the default 24-hour value of 86,400 seconds) may be in-use.

BLOB caching

Observation

Image is changed on a SharePoint site. Some client browsers show new image while others show the old image.

Potential Cause

- A high max-age attribute (such as the default 24-hour value of 86,400 seconds) may be in-use.

What You Can Do

- Instruct clients to clear their browser cache and revisit site.
- Apply a smaller max-age attribute value or use zero (0) to disable persistent client-side caching of BLOB assets.
- Recognize that this behavior is by-design!

References and Resources

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Configure cache settings for a Web application (SharePoint Server 2010)

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<http://sharepointinterface.com/2009/08/30/moss-object-cache-memory-tuning-is-not-an-intuitive-process/>

cache Element for caching (ASP.NET Settings Schema)

<http://msdn.microsoft.com/en-us/library/ms228248.aspx>



SEAN P. McDONOUGH

Blog: <http://SharePointInterface.com>

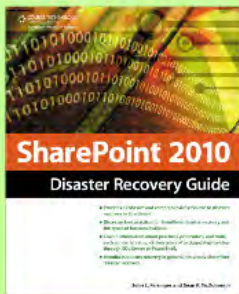
Email: sean@SharePointInterface.com

LinkedIn: <http://www.linkedin.com/in/smcdonough>

Twitter: [@spmcdonough](https://twitter.com/spmcdonough)



SharePoint 2007 Disaster Recovery Guide
<http://tinyurl.com/SPDRGuide2007>



SharePoint 2010 Disaster Recovery Guide
<http://tinyurl.com/SPDRGuide2010>

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Presenter: **Sean McDonough**

Session Name: **“Caching-In” for SharePoint Performance**

Session No.: **Sat-S1A-102**