



# “Caching-In” for SharePoint Performance

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# Caching-In for SharePoint Performance



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# 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



caching

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



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facing SharePoint presence

OKAY ...

Why I



caching

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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"!!!

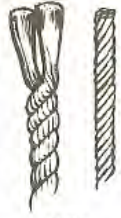
So, what is caching?

Webster's  
New World<sup>™</sup>  
Dictionary



Third College Edition

etc. caused by living for some time in a confined space or an isolated area, esp. in winter  
**cab-ble** (kɑ'bol) *n.* [ME & OFr < LL *capudum*, a cable, rope < L *capere*, to take hold; see HAVE] 1 a thick, heavy rope, now often of wire strands 2 the strong, heavy chain attached to a ship's anchor; anchor cables were formerly of rope 3 **CABLE LENGTH** 4 a bundle of insulated wires through which an electric current can be passed; telegraph or telephone cables are often laid under the ground or on the ocean floor 5 a cablegram 6 **CABLE TV** —*vt.* **bled**, **bling** 1 to fasten or furnish with a cable or cables 2 to transmit by undersea cable 3 to send a cablegram —*vi.* to send a cablegram  
**Cable** (kɑ'bol), George Washington 1844-1925; U.S. novelist.



CABLE

\***cab-ble car** a car drawn by a moving cable, as across a canyon, up a steeply inclined street, etc.

**cab-ble-cast** (kɑ'bol kɑst) *vt.* **-cast**, **-cast'ing** to transmit directly to receivers by means of coaxial cable —*n.* a program that is cablecast —*cab-ble-cast'er* *n.*

**cab-ble-gram** (-gram) *n.* a message sent by undersea cable  
**cab-ble-laid** (kɑ'bol laid) *adj.* made of three or four plain-laid ropes twisted together from right to left

**cab-ble length** a unit of nautical measure equal to 720 feet (120 fathoms or 219 m) or, in British usage, 600 feet (100 fathoms or 183 m) or 607.6 feet (3/4 of a nautical mile or 185 m)

**cab-ble railway** a street railway on which the cars are pulled by a continuously moving underground cable

**cab-ble stitch** a type of raised stitch used in knitting; it resembles ropes twisted together

**cab-ble TV** a television system in which a high antenna and one or more dish antennas receive signals from distant and local stations, electronic satellite relays, etc. and transmit them by direct cable to the receivers of persons subscribing to the system

**cab-man** (kɑb'mæn) *n., pl. -men* (-men) **CABDRIVER**

**cab-bob** (kɑ'bɒb) *n.* **KEBAB**

**cab-o-chon** (kɑb'ɔ'ʃɔn; Fr kɑ bɔ'ʃɔn) *n.* [Fr < *caboché*, head] 1 any precious stone cut in convex shape, polished but not faceted; see GEM, ILUSTR. 2 the style of cutting such a stone

**cab-om-ba** (kɑ'bɒm'bɑ) *n.* [ModL < Sp] any of a genus (*Cabomba*) of waterlilies (family Cabombaceae), esp. a species (*C. caroliniana*) with submerged, needlelike leaves and rounded, floating ones; used in aquariums, garden pools, etc.

\***ca-boodle** (kɑ'bood'ə) *n.* [Cov., colloq. intens. prefix (< ? Ger) + + *BOODLE* [Colloq.] lot; group (the whole *caboodle*)]

**cab-oose** (kɑ'bu:s) *n.* [MDu *kabuss*, *kambuss* (< ?), ship's galley] 1 [Brit.] *Naut.* a ship's kitchen; galley 2 the trainmen's car on a freight train, usually at the rear

**cab-ot** (kɑb'ɒt) 1 John (fl. name *Giovanni Caboto*) c. 1450-c. 1498: It. explorer in the service of England: discovered coast of North America (1497) 2 **Sebastian** c. 1476-1557; Eng. cartographer & explorer: son of John

**cab-o-tag** (kɑb'ɒ'tʃ) *n.* [Fr < *caboter*, to sail along the coast < MFr *cabo*, cape < Sp < L *caput*, HEAD] 1 coastal navigation and trade, esp. between ports within a country 2 air transport within a country 3 the right to engage in cabotage, esp. as granted to foreign carriers

**ca-bre'tta** (kɑ'brɛ'tə) *adj.* [ < Sp *cabra*, goat (< L *capra*, fem. of *caper*; see **CAPRIOLE**) — If fem. dim. suffix -*etta* ] designating or of a soft leather made from a special kind of sheepskin

**ca-brilla** (kɑ'bril'ə, -brɛ'ʃə) *n.* [Sp, prawn, dim. of *cabra*, goat; see prec.] any of various edible, percoid fishes (family Serranidae) found off Florida, the West Indies, etc.

**ca-brini** (kɑ'brɛ'ni), *Saint Francis Xavier* (called *Mother Cabrini*) 1850-1917; U.S. nun, born in Italy: first U.S. citizen canonized: her day is Dec. 22

**cab-ri-ole** (kɑ'brɛ'ɔ) *n.* [Fr; see fol.] 1 a leg of a table, chair, etc. that curves outward and then tapers inward down to the foot, often clawlike and grasping a ball 2 *Ball* a loop in which one leg is thrown upward and the ball is then beaten together

**cab-ri-ole** (kɑ'brɛ'ɔ) *n.* [Fr. dim. of *cabriole*, a leop., caper < It *capriole*, CAPRIOLE] 1 a light, two-wheeled carriage, usually with a hood that folds, drawn by one horse 2 a former style of automobile like a convertible coupe

**cab-stand** (kɑb'stænd) *n.* a place where cabs are stationed for hire

**cac** (kɑk) *combining form* **CAC-**; used before vowels

**caca** or **ca-ca** (kɑ'kɑ) *n.* [Slang.] excrement; feces:



CABRIOLET

**cacao butter** CACAUA BUTTER  
**ca-cia-tōre** (kɑ'ʃɑ' tɔr'ə) *adj.* [It, lit., hunter < pp. of *cacciare* = hunt, chase < VL *\*cacciare*, to CATCH] cooked in a casserole with olive oil and tomatoes, onions, spices, wine, etc. [chicken *ca-ciato*]

**cacha-lot** (kɑʃ'ə lɒt', lɔ' t) *n.* [Fr < Sp *cachalote* < colloq. *foca*, *cachala*, head] **SPIERM WHALE**

**cach-e** (kɑʃ'ə) *n.* [Fr < *cachier*, conceal < VL *\*cacciare*, store] collect, compress < L *caecare*, constrain < *caecus*, mp. of *caeco* < *caec-*; see **COGNATE** | *to hide* (see **COGNATE**)

**cache** (kɑʃ'ə) *n.* [Fr < *cachier*, conceal < VL *\*cacciare*, store] 1 a hidden, secret place for stashing things 2 a safe place for storing things 3 anything stored or hidden in such a place —*vi.* **cached**, **cach'ing** to hide or store in a cache —*SYN.* HIDE 1

**cache-pot** (kɑʃ'pɑt', pɑ' t) *n.* [Fr < *cachier*, to hide (see prec.) + *-pot*] a decorative pot, jar, etc., used, esp. for holding potted house plants. Also **cache pot**

**cache-sexe** (kɑʃ'sɛks'ə) *n.* [Fr < *cachier*, to hide (see **CACH-**), *sexe*, sex] a small cloth or band worn, as by an otherwise nude dancer, to conceal the genitals

**ca-chie** (kɑ'ʃɑ', kɑʃ'ɑ) *n.* [Fr < *cachier*; see **CACHE**] 1 a seal or stamp on an official letter or document; see also **LETTER 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 marking 4 *Philly* a commemorative design on an envelope that makes some historical or philatelic sense 5 a little, round wafer enclosing a bad-tasting medicine —*vt.* *Philly* to print a cachet on (an envelope)

**ca-che-xia** (kɑ'kɛʃ'ə) *n.* [ModL < Gr *kachexia*, had habit of being < *kachō*, had + *hexis*, habit < *chein*, to have < IE base *\*kēh₂-*, to hold fast, conquer > **SCHEME**] a generally weakened, emaciated condition of the body, esp. as associated with a chronic illness. Also **ca-che-x'y** (-sɛ) —**ca-che-x'ic** (-kɛk'tɪk) or **ca-che-x'ic** (-kɛk'sɪk) *adj.*

**cach-in-nate** (kɑk'ən'ɪt'ə) *vi.* **-nat'ed**, **-nat'ing** | < L *cachinnatus*, pp. of *cachinnare*; ult. of *echoic* orig. | to laugh loudly or too much —**cach-in-na'tion** *n.*

**ca-chou** (kɑ'ʃɔʊ) *n.* [Fr < Port *caçú* < Malayalam *kaccu*, akin to *thou* *kaccu*] 1 CATECHU 2 a lozenge for sweetening the breath

**ca-chu-cha** (kɑ'ʃɔʊ'tʃɑ) *n.* [Sp.] 1 an Andalusian dance in 3/4 time, like the bolero 2 music for this

**ca-ci-que** (kɑ'kɛk'ə) *n.* [Sp < Arawak word meaning "prince," *kañi*, 1 *ñ*] in Spanish America, an Indian chief 1/2 in Spanish America and Spain, a local political boss 2 any of various tropical American blackbirds (family Icteridae) with comical bills —**ca-ci-que** *adj.*

**cash-hand-ed** (kɑʃ'hænd'ɪd) *adj.* 1 [Brit. Colloq.] left-handed 2 clumsy; awkward

**catch** (kɑk'ʃ) *vt.* **-ed**, **-ing** [ME *catchen*; akin to Du *katchen*, LowG *katchen* < IE base *\*kəkʰ-* of *echoic* orig. | 1 to make the shrill, broken vowel sounds of a hen 2 to laugh or chatter with similar sounds —*vt.* to utter in a cackling manner — 1.1 the act or sound of cackling 2 cackling laughter 3 idle or silly chatter —*gd* the cackle [Brit. Colloq.] to stop talking and settle down to serious efforts

**CACM** Central American Common Market

**cac-ō-** (kɑk'ɔ-, ɔ-) | < Gr *kakos*, bad, evil] combining form *bad*, *poor*, *harsh* [*cacography*]

**cac-ō-demon** or **cac-ō-dæ-mon** (kɑk'ɔ' dɛ'mən) *n.* [Gr *kakos*, *daimon*; see prec. & **DEMON**] an evil spirit or devil

**cac-ō-dyl** (kɑk'ɔ' dɪl, kɑk'ɔ' n.) | < Gr *kakōdes*, bad-smelling — *kakos*, bad — *-odes* (< IE base *\*od-*, to smell > **ODOR**, **COONE**) + *-yl*, *-yl*, *-yl* Chem. 1 the radical As(CH<sub>3</sub>)<sub>2</sub>, composed of arsenic and methyl; the compounds are poisonous and foul-smelling 2 a poisonous, odorless liquid, As<sub>2</sub>(CH<sub>3</sub>)<sub>4</sub>, with an offensive odor: it is a polymer of this radical —**cac-ō-dyl'ic** (-dɪl'ɪk) *adj.*

**cac-ō-ethes** (kɑk'ɔ' ethɛz) *n.* [L < Gr *kakōethēs* < *kakos*, bad-smelling; habit; see **ETHICAL**] a hankering (to do something); *malice*

**ca-co-g-ro-phy** (kɑ'kɑ'grə'fɪ) *n.* [CACCO- + -GRAPHY] 1 bad humor 2 incorrect spelling —**ca-co-g-ro-ph'ic** (-dɪl'ɪk) *adj.*

**ca-co-mix-tle** (kɑk'ə mɪʃ'əl) *n.* [AmSp *cacomixtle* < Nahuatl *ca'comixtli* < *ca'xōn*, hall + *mis'atl*, crucifer] 1 a slender, long-stemmed, racemose carnivore (*Bassariscus astutus*) of the SW U.S. and Mexico 2 its fur Also **ca-co-mix'le** (-mɪs'əl, -mɪk'səl)

**ca-co-pho-ny** (kɑ'kɑ'fə nɪ) *n., pl. -nies* [prob. via Fr *cacophonie*; ML *cacophonía* < Gr *kakophōnia* < *kakōphōnos*, harsh-sounding; *kakos*, bad, evil — *phōne*, voice; see **PHONO**] harsh, jarring sound; dissonance —**ca-co-ph'o-nous** (-nas) *adj.* —**ca-coph'o-nously** *adv.*

**ca-cus** (kɑk'təs) *n., pl. -tuses* or *-tū* (-tū) [ModL < Gr *kaktos*, cactus of thistle, cardoon] any desert plants of the cactus family, native to the New World, with fleshy stems, reduced or spine-like leaves, and often showy flowers —*adj.* designating a family (Cactaceae) of dicotyledonous plants (order Caryophyllales), including the most popular, saguaro, and cereus

**ca-cu-mi-nal** (kɑ'kju'mɪnəl) *adj.* [ < L *caecumen* (gen. *caecumini*) < *caeco* (< redupl. of IE base *\*kēh₂-*, to see HIGH) + *-al*, *-al*] *Phonet.* pronounced with the tip of the tongue turned backward and upward against or toward the hard palate —*n.* a cacuminal sound

**cad** (kɑd) *n.* | < **CADDIE** & **CADET**] 1 a man or boy whose chief occupation is to attend to the needs of golfers and caddy schools

**cad-** (*cad'*) *combining form* **CAD-**; used before vowels

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**cad-** (*cad'*) *combining form* **CAD-**; used before vowels

**cad-** (*cad'*) *combining form* **CAD-**; used before vowels

(usually, esp. of a person; corpse, as for dissection —*SYN.* BODY —*ca-*

**cad-** (*cad'*) *combining form* **CAD-**; used before vowels

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**cad-** (*cad'*) *combining form* **CAD-**; used before vowels

ment occurring as a sulfide or carbonate in zinc ores: it is used in some low-melting alloys, electroplating, rechargeable batteries, etc.; highly toxic dust or fumes: symbol, Cd; at. wt., 112.40; at. no., 48; sp. gr., 8.642; melt. pt., 321.1°C; boil. pt., 767°C —**cad'mic** (-mɪk) *adj.*

**cadmium sulfide** a toxic pigment, CdS, varying from lemon yellow (cadmium phos.) to yellowish orange (cadmium orange) and used in paints, photocells, semiconductors, etc.

**Cad-mus** (kɑd'mʌs) (*Gr Kadmos*) | a Phoenician prince and founder of Thebes: he kills a dragon and sows its teeth, from which many armed men rise, fighting each other, until only five are left to help him build the city

**cad-re** (kɑ'drɛ', -drɑ'; also , kɑr' ) *n.* [Fr. a frame < It *quadro* < L *quadrum*, a square; see **QUADRATE**] 1 basic structure or framework 2 an operational unit, as of staff officers or other key personnel, around which an expanded organization can be built 3 a small, unified group organized to instruct or lead a larger group; nucleus 4 a member of a political, esp. Communist, cadre

**ca-du-ceus** (kɑ'dʊ'seɪs, -dyo's- ) *n., pl. -cei* (-sɛɪ) [L; ? via Etr < Gr(Doric) *karykeion*, for Gr *kerykeion* < *kéryx*, herald < IE base *\*kar-*, to praise > OHG *hrizon*, *Gr ruhim*] 1 the staff of an ancient herald; esp., the winged staff with two serpents coiled about it, carried by Mercury 2 an emblematic staff like this with either one or two serpents, used as a symbol of the medical profession —**ca-du-cean** *adj.*

**ca-du-city** (kɑ'dʊ'sɪ'ti, -dyoo's-) *n.* [Fr *caducité* < L *caducitas* < L *caducus*; see fol.] 1 the quality or state of being perishable 2 sensibility

**ca-du-cous** (-kəs) *adj.* [L *caducus*, falling < *cadere*, to fall; see **CASIR**] *Bot.* falling off early, as some leaves

**cae-cil-ian** (sɛ'sɪ'lɪ ən, -sɪ'l'jən) *n.* [ < ModL < L *caecilia*, kind of lizard < *caecus*; see **CECUM**] any of an order (Gymnophiona) of legless tropical amphibians resembling worms

**cae-cum** (sɛ'kəm) *n., pl. -ca* (-kɑ) **CECUM**

**Caed-mon** (kɑd'mən) fl. late 7th cent. A.D.; first Eng. poet whose name is known

**Cae-li-an** (sɛ'lɪ ən, sɛ'l'jən) [after L *Caelius Mons*, Caetian hill, named after the Tuscian *Caetes Vibenna*] see **SEVEN HILLS** OF ROME

**Cae-lum** (sɛ'ləm) a small S constellation between Columba and Eridanus

**Caen** (kæn) chief city of Basse-Normandie, NW France: pop. 117,000

**Caer-nar-vo-shire** (kær'nær'vən shɪr-, -shər) former county of NW Wales, now part of Gwynedd; also **Caer-nar-vo**

**caes-al-pi-nia** (sɛzəl'pɪn'ə ə, sɛz'-) *adj.* designating a family (*Caesalpinieae*) of leguminous trees and shrubs, including the Kentucky coffee tree

**Caes-sar** (sɛ'sær) *n.* [after fol.] 1 the title of the emperor of Rome from Augustus to Hadrian, or of the emperor of the Holy Roman Empire 2 any of the Roman emperors 3 [often *c-*] any emperor or dictator

**Caes-sar** (sɛ'sær), (Gaius) Julius [L *Caesar*, said to be < *caesus*, pp. of *caedere*, to cut down (see **CHISEL**), but prob. of Etr. orig. | c. 100-44 B.C.; Rom. general & statesman; dictator (49-44) of the Roman Empire

**Caes-a-rea** (sɛs'ə rɛ'ə, sɛz', sɛ'sær-) 1 seaport in ancient Palestine, on the Mediterranean, S. of Haifa, Israel: Roman capital of Palestine 2 city in ancient Palestine, near Mt. Hermon: also **Caesarea Philippi** 3 ancient name of KYAUSER

**Caes-a-rian** or **Caes-a-rian** (sɛz'ə rɪ'ən) *adj.* of Julius Caesar or the CAESARS —*n.* CAESAERIAN SECTION

**Caesarean section** [by assoc. of the name *Caesar* with *L caedere*; see (Gaius) Julius CAESAR] that Caesar or an ancestor had been born in this manner | **also** *c-* | a surgical operation for delivering a baby by cutting through the mother's abdominal and uterine walls

**Caes-ar-ism** (-sær'arɪzəm) *n.* [also *c-*] absolutism in government; autocracy —**Caes-ar'ist** *adj., n.*

\***Caesar salad** [so named in honor of (Gaius) Julius CAESAR by Giacomo Junia, Italian-American chef in Chicago, who invented it c. 1903] a salad of greens, grated cheese, croutons, anchovies, etc., with a dressing of olive oil, lemon juice, garlic, and raw or cooked eggs

**cae-sium** (sɛ'sɪəm) *n.* **CESSIUM**

**caes-pi-tose** (sɛs'pɪ' toʊs) *adj.* **CHESPILOSE**

**cae-sure** (sɪ'zʊr-ə, -ʒʊr-ə) *n., pl. -rae* (-rə) [L, a cutting < pp. of *caedere*, to cut down; see **CHISEL**] 1 a break or pause in a line of verse: in Greek and Latin verse, the caesura falls within the metrical foot; in English

**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

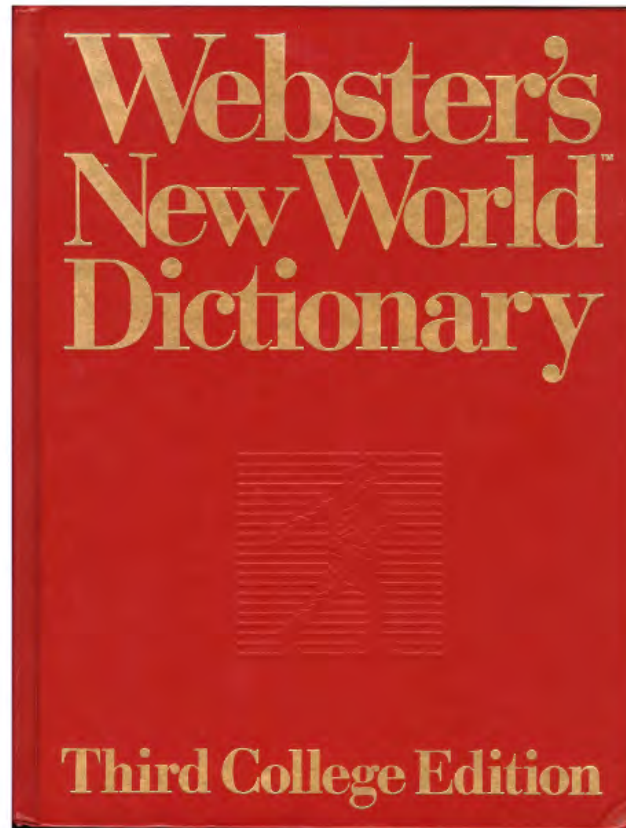
**cache** (kash) *n.* [[Fr < *cache*, conceal < VL \**coacticare*, store up, collect, compress < L *coactare*, constrain < *coactus*, pp. of *cogere*, to collect: see COGENT]] **1** a place in which stores of food, supplies, etc. are hidden, as by explorers or trappers **2** a safe place for hiding or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

**cache·pot** (kash'pät, -pō') *n.* [[Fr < *cache*, to hide (see prec.) + *pot*, POT<sup>1</sup>]] a decorative pot, jar, etc., used esp. for holding potted house plants Also **cache pot**

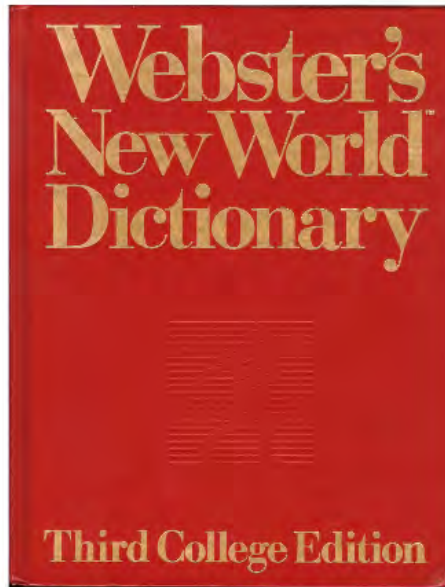
**cache·sexe** (kāsh'seks') *n.* [[Fr < *cache*, to hide (see CACHE) + *sexe*, sex]] a small cloth or band worn, as by an otherwise nude dancer, to conceal the genitals

**ca·chet** (ka shā', kash'ā) *n.* [[Fr < *cache*: 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) distinct





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

HTCP

Cache:  
what is it?

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 data that is computationally expensive or slow to fetch can be stored for faster access



# Option 1: Place data on a faster medium





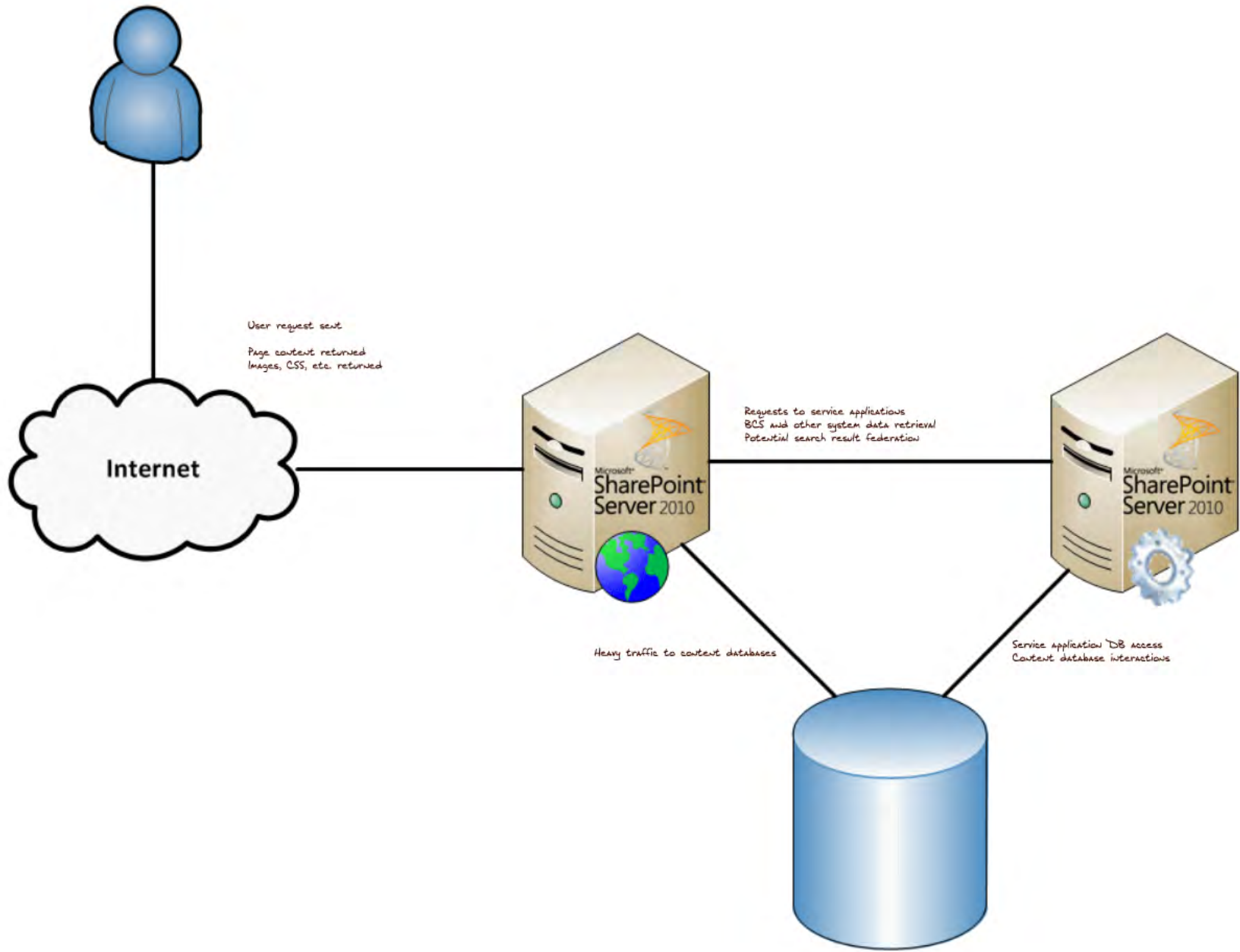
Option 2:  
place data  
closer to the  
point of usage



Why?

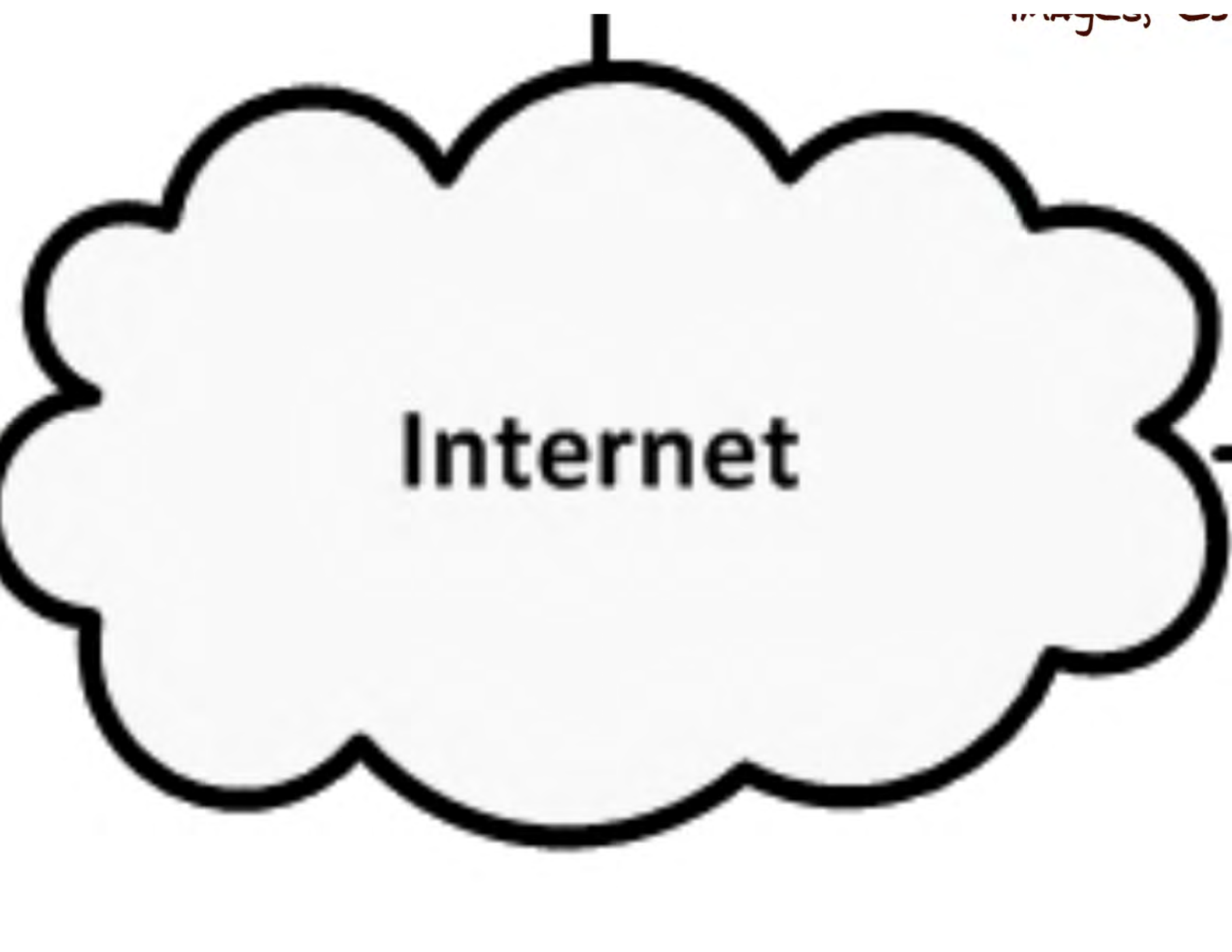
# Why?

or at least "why for SharePoint?"







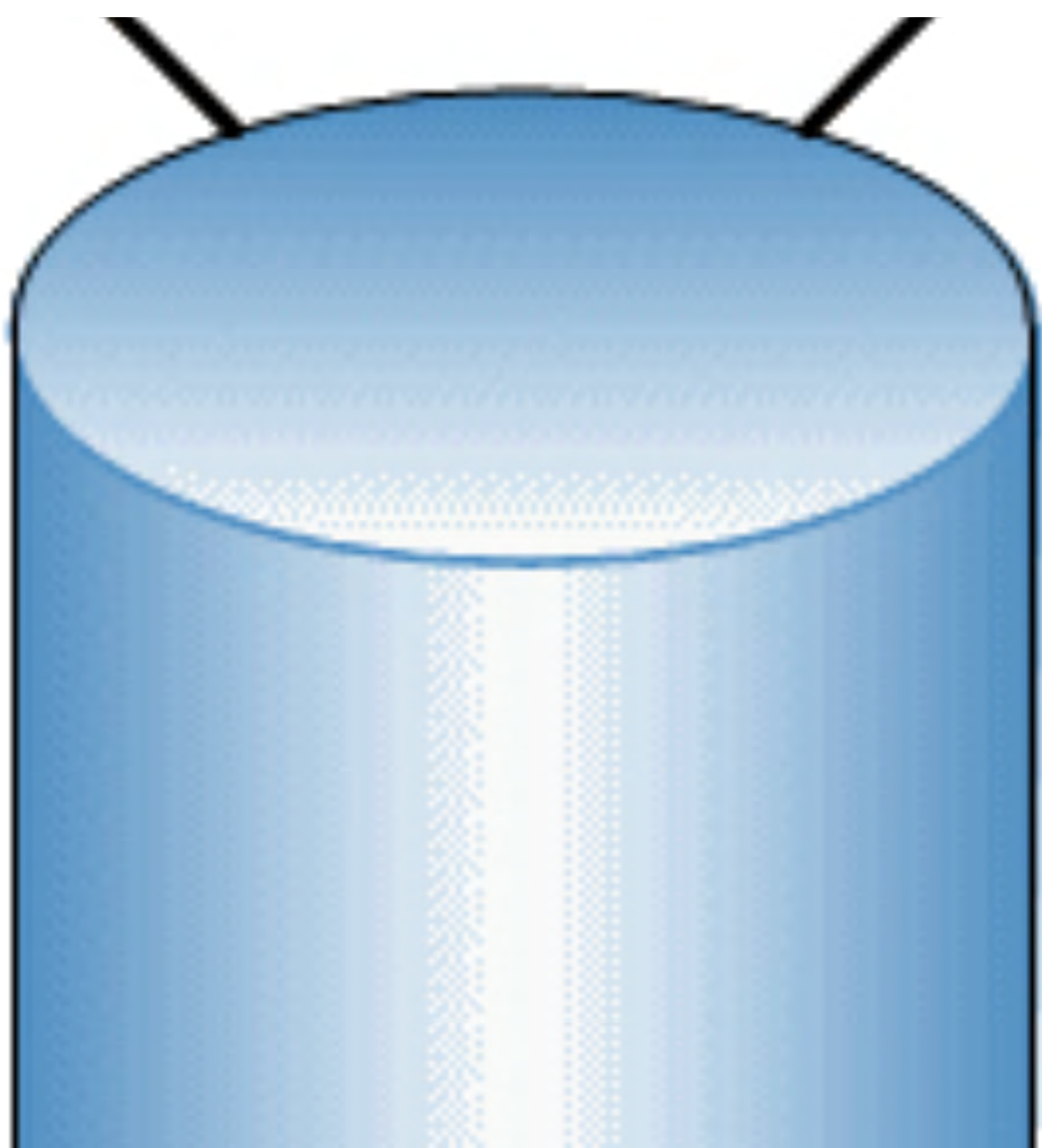


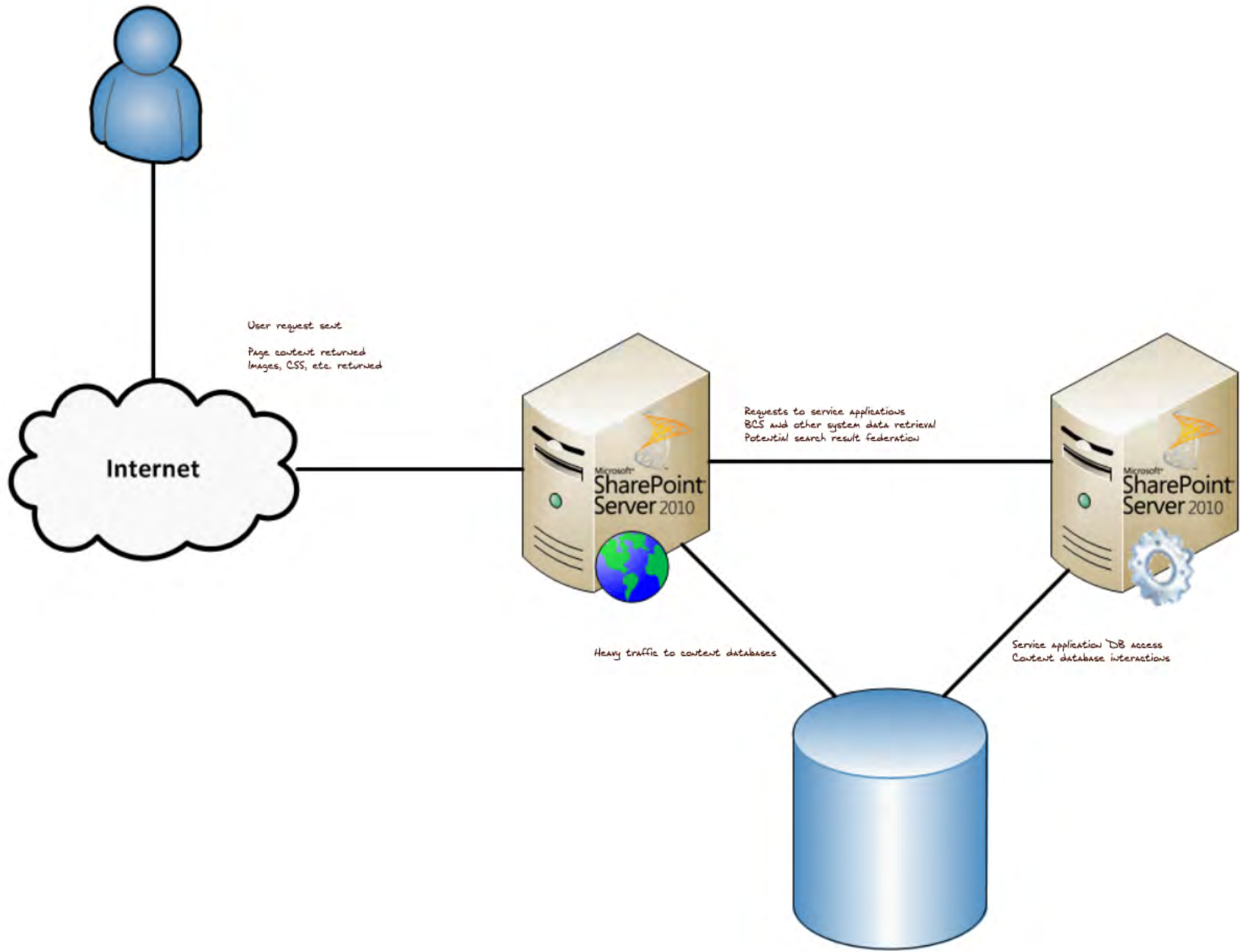
**Internet**



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

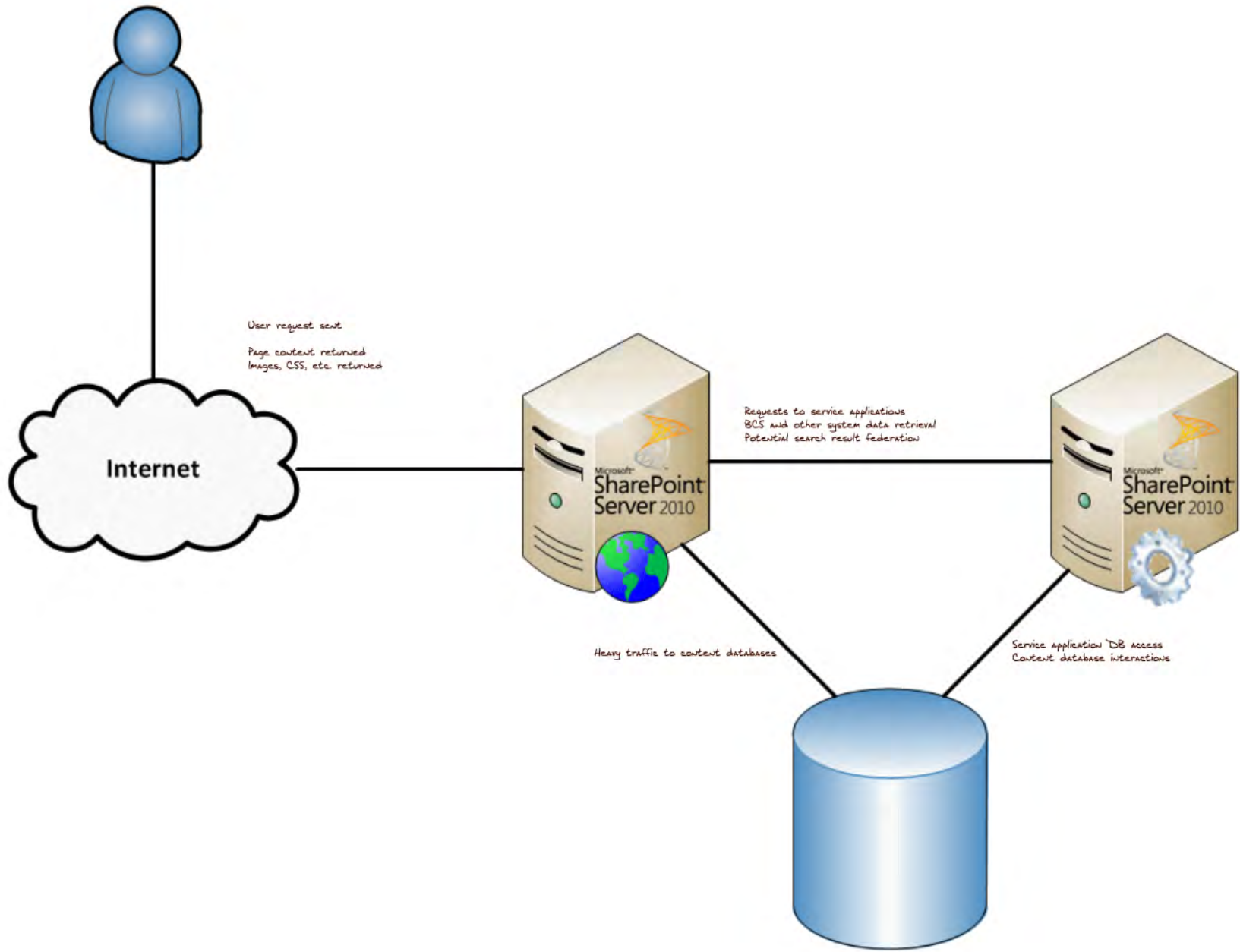
---

oint  
010





Service application DB access  
Content database interactions





Re  
BO  
Po

# ASP.NET Page and Control Life Cycle

Key

Page

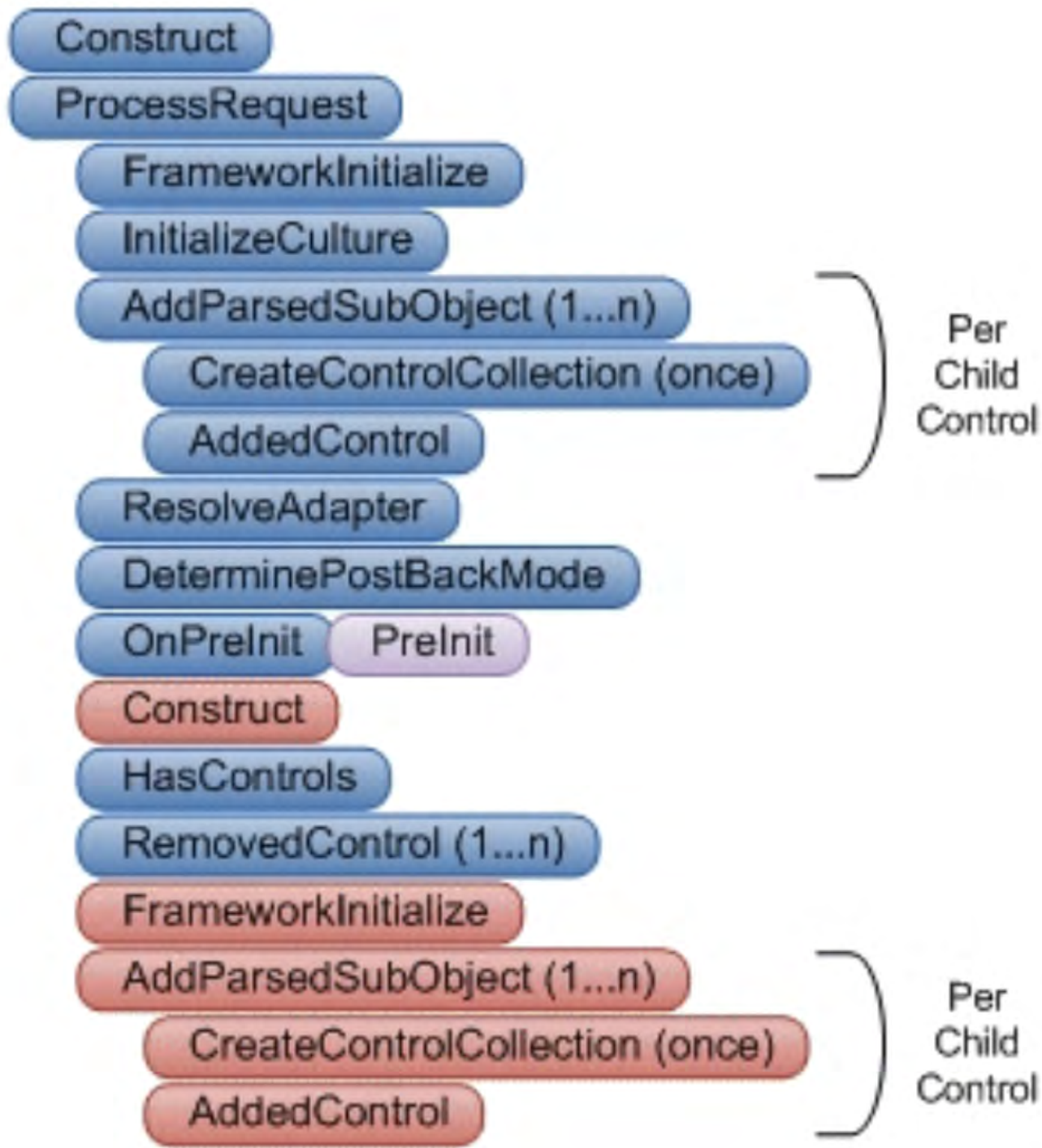
Master Page

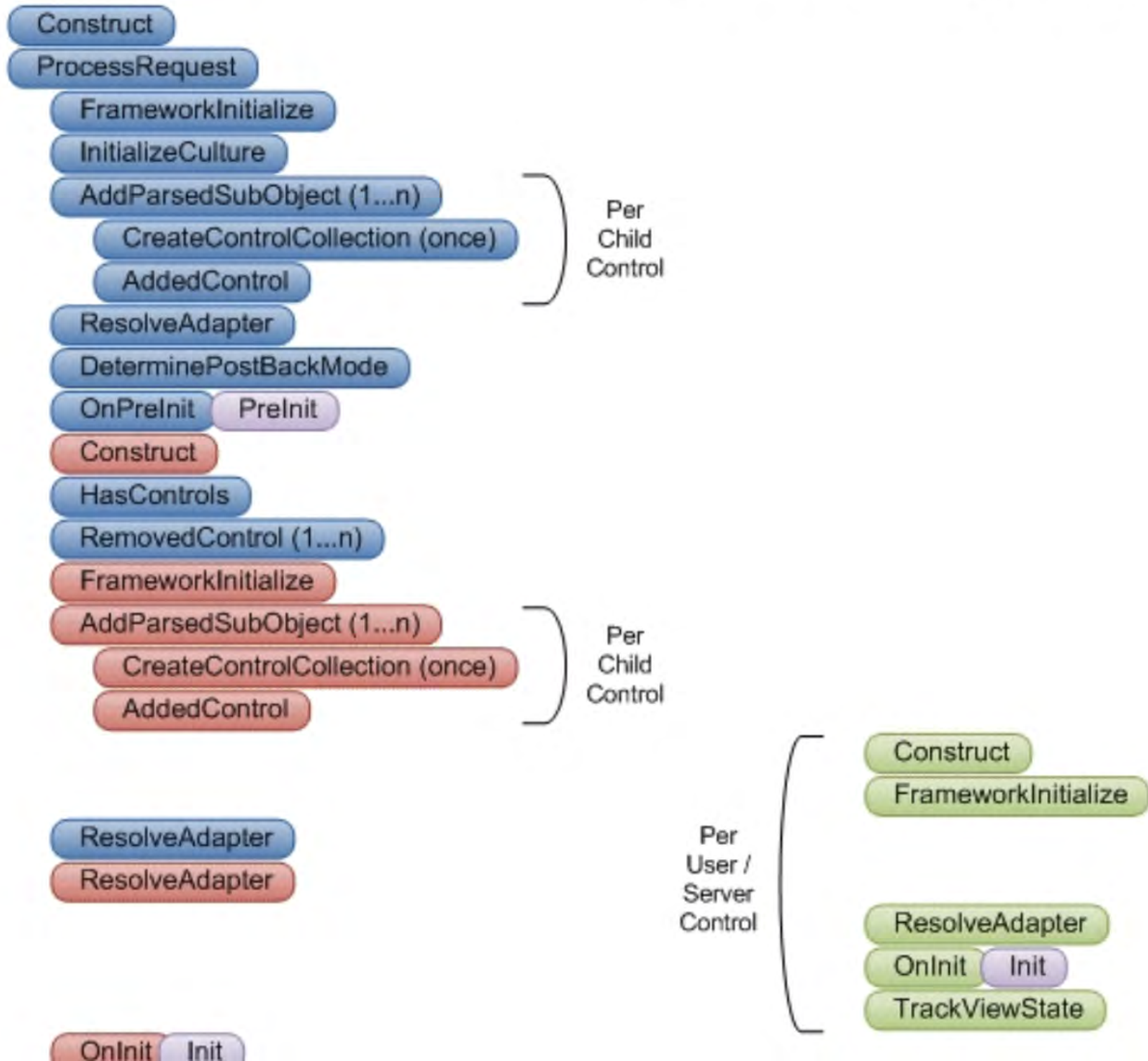
User Control

Server Control

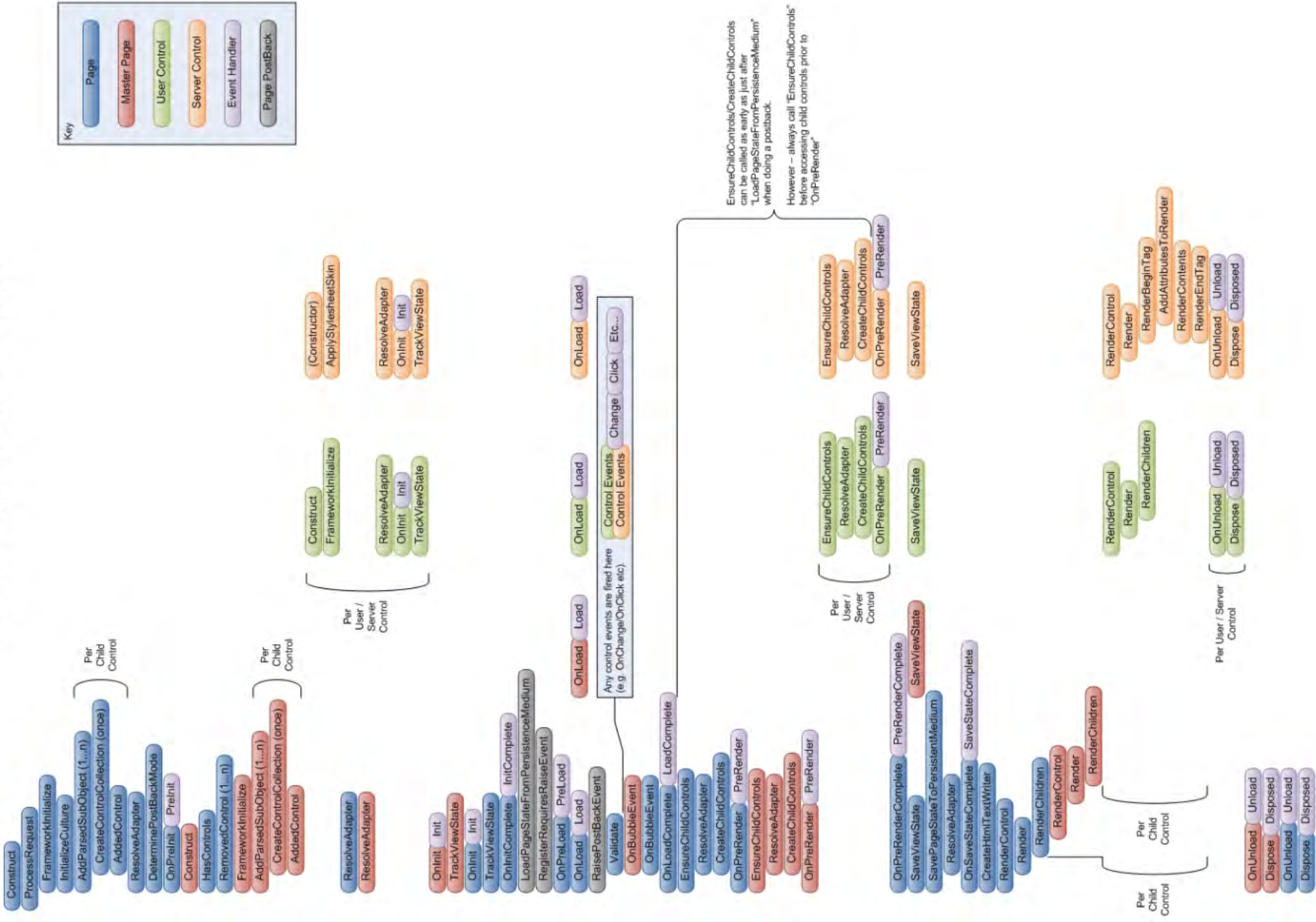
Event Handler

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

CHECKLIST



*Mentioned but not covered in depth: web part cache, ASP.NET cache, VaryByCustomHandler 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

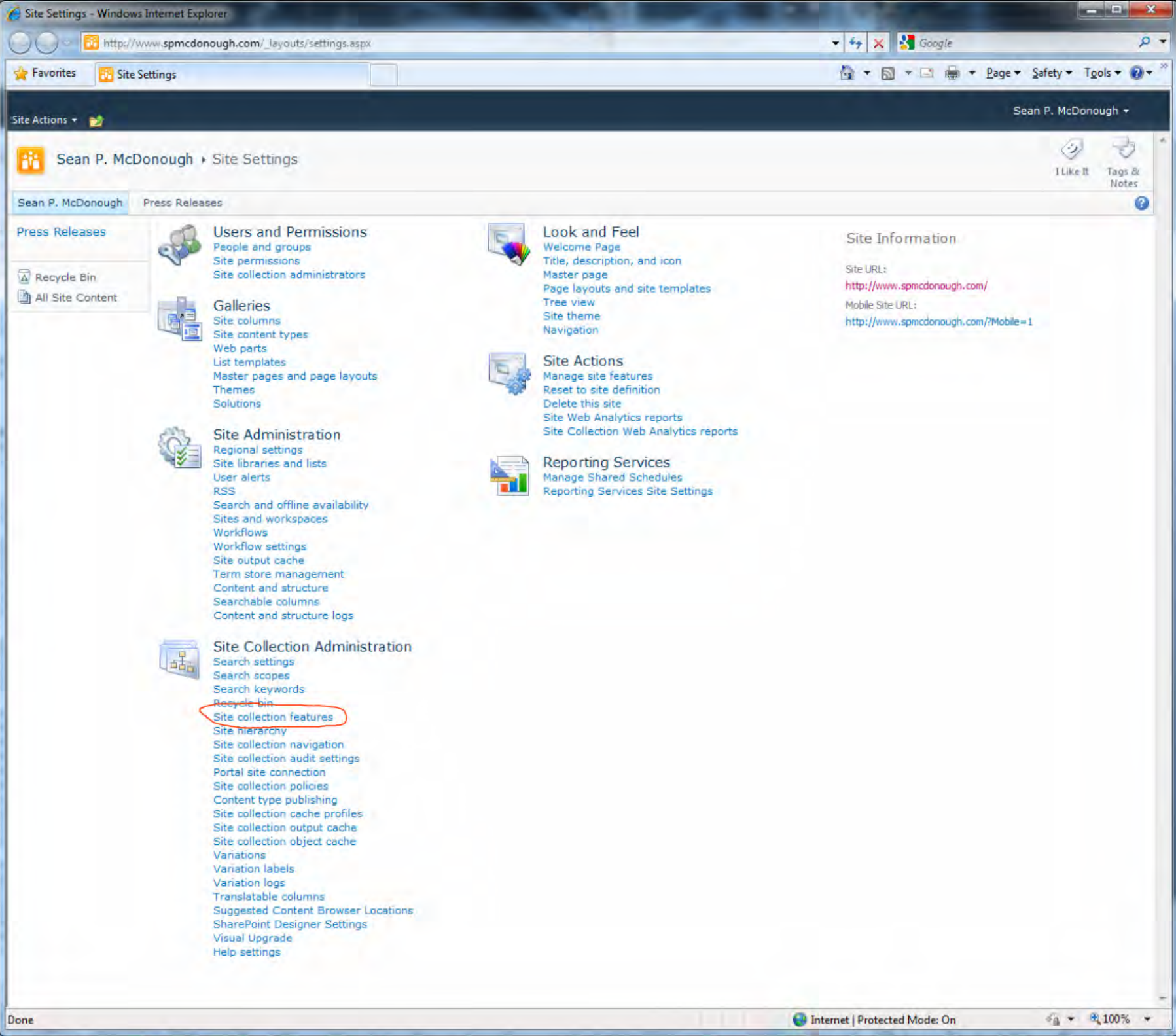
<http://SharePointInterface.com>

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

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

Of course, this poses some problems for WSSv3 with SPN 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 other features are included in the SharePoint Server Enterprise License.



## SharePoint Server Publishing Infrastructure

Provides centralized libraries, content types, master pages, and other 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

For know features provided by Office Online

## ise Site Collection features

ms Services, Visio Services, Access Services  
License.

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

## ng Infrastructure



content types, master pages and page layout  
n.

## d 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" title with a smiley face icon, a "Site Actions" dropdown menu, and a search box labeled "Search this site...". The main content area is divided into several sections:

- Home**: A vertical list of three buttons: "My SharePoint Site", "Your SharePoint Site", and "Another Site".
- Welcome Back, Bob!**: A heading followed by a large, noisy image.
- Video Placeholder**: A video icon followed by the text: "It is by will alone I set my mind in motion." and "It is by the juice of Sapho that thoughts acquire speed, the lips acquire stains, the stains become a warning." Below this is another instance of "It is by will alone I set my mind in motion."
- Text Block**: A large text area containing the poem: "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".

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



NAVIGATIONAL DATA  
such as this  
breadcrumb ...





Site Actions

## Home

My SharePoint Site

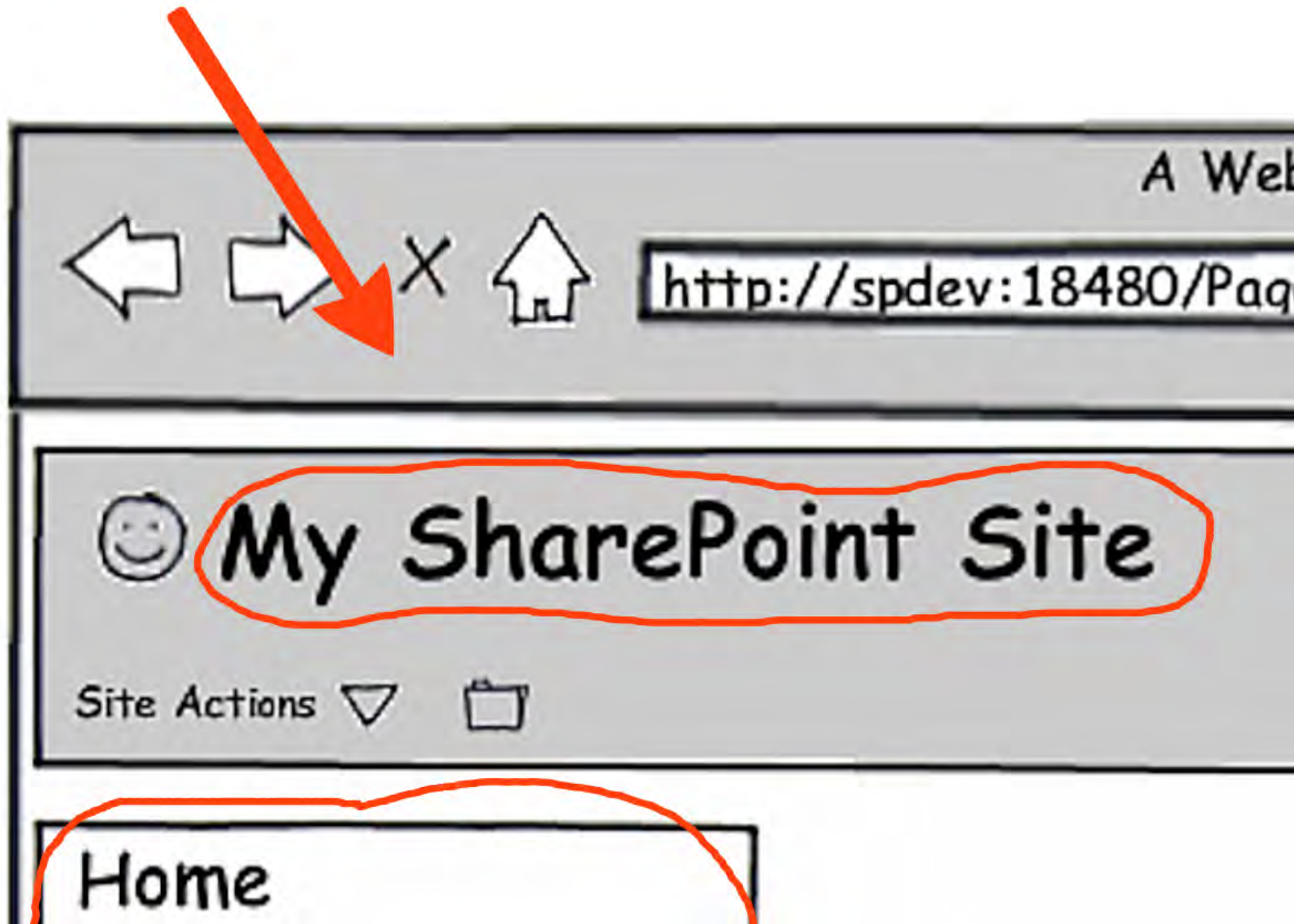
Your SharePoint Site

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 be a Content Query Web Part (CQWP), they could benefit significantly 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="1d415973-1146-4bc2-8324-83dffff5b000" />
</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\Server\WSS\WSS_Medium.policy" />
    <trustLevel name="WSS_Minimal" policyFile="C:\Program Files\Microsoft Office\Server\WSS\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](#)

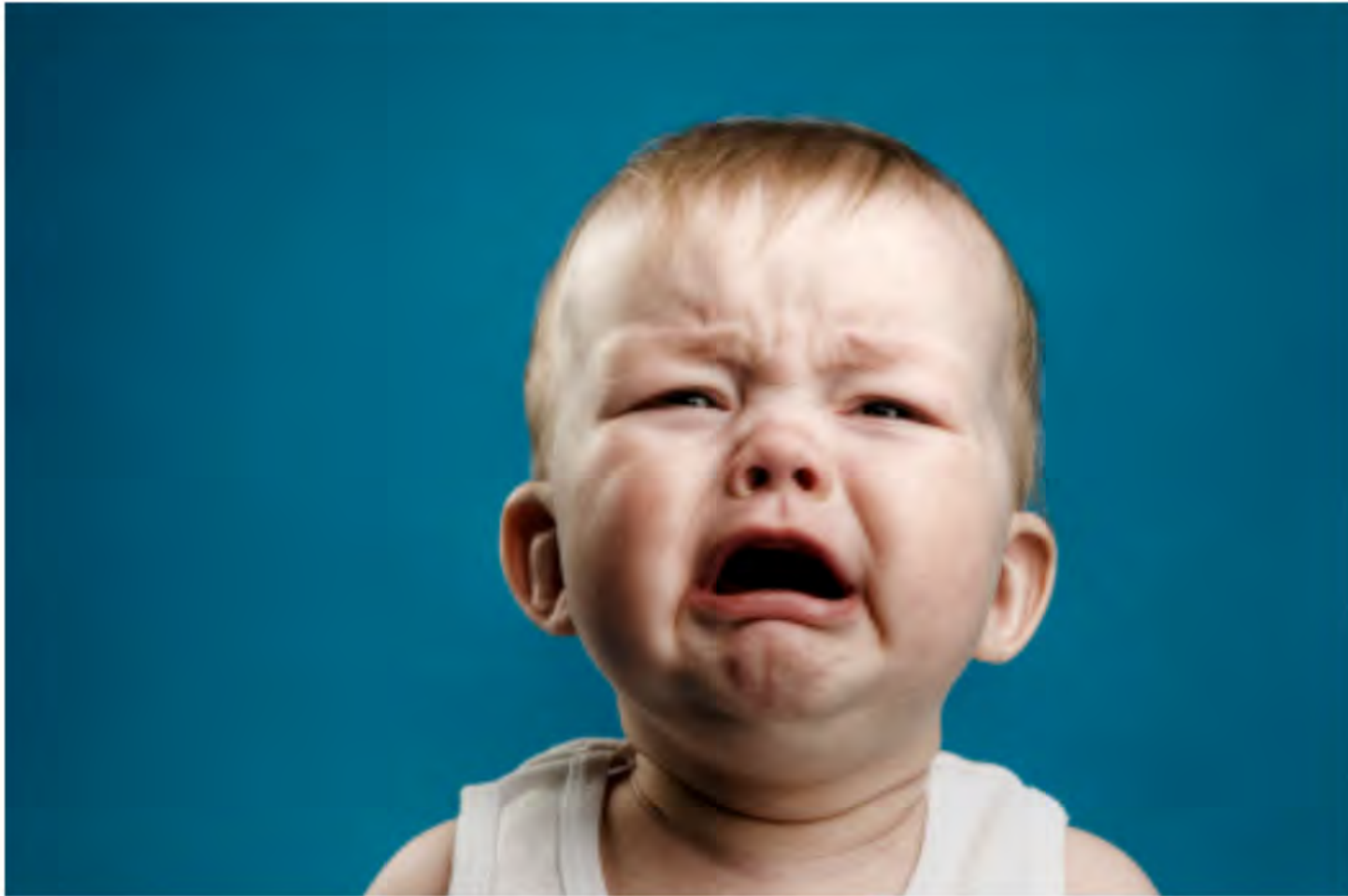
Bin



*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!

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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!

*I'll give you some performance counters to watch a little later ...*

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 only when the items time out or are changed in the database.

---

## Cross List Query Cache Changes

Cross list queries initiated by the Content Query Engine 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 list query. Cross list queries that 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  
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is prevalent

### Site Collection Administration > Object cache settings

Configure settings for the object cache.

Sean P. McDonough Press Releases

Search this site...

Press Releases

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60

#### Cross List Query Results Multiplier

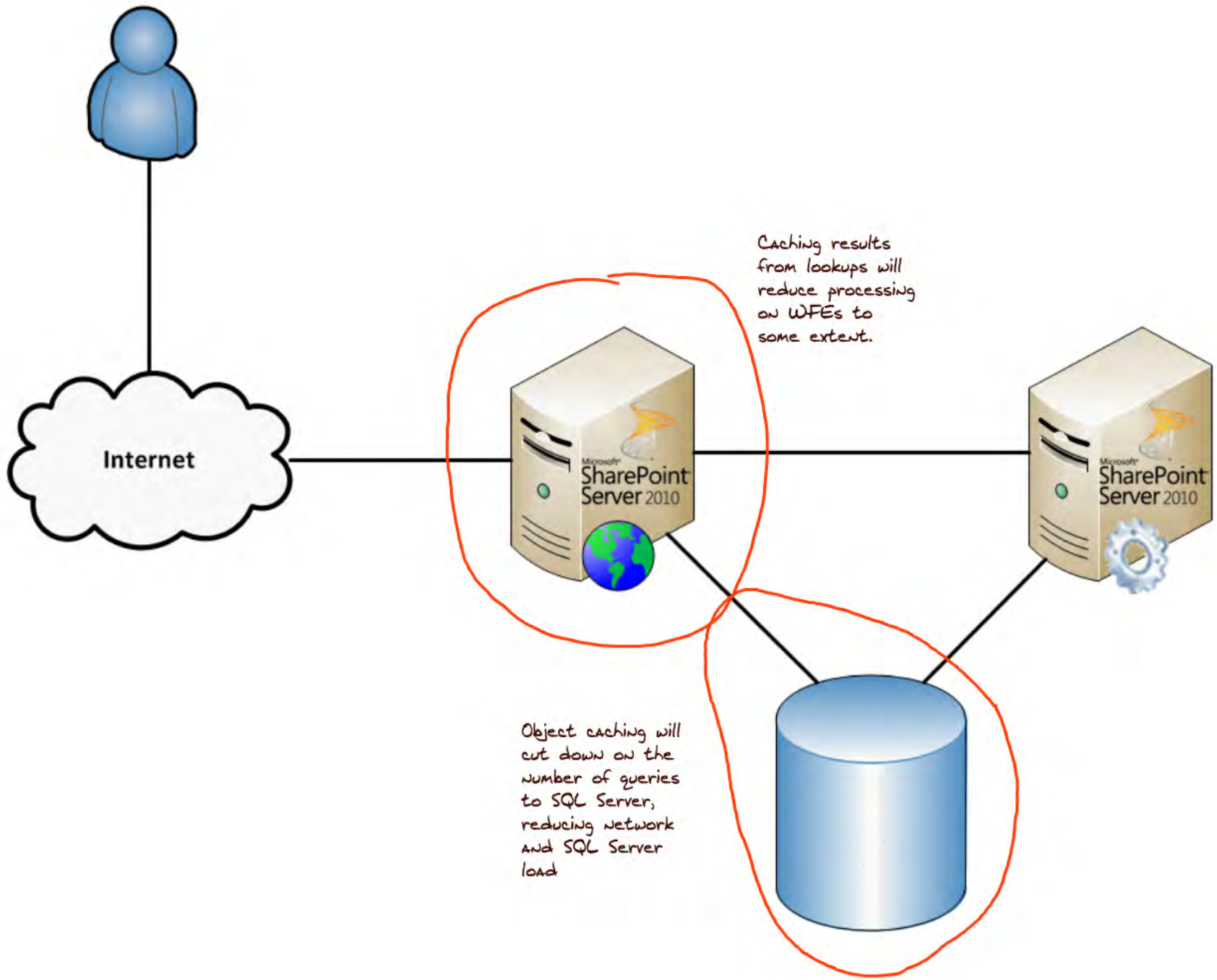
Each cross list query might retrieve results for a variety of users. To ensure after security trimming that all users will see a valid set of results, the cross list query cache must pull more results than originally requested. Specifying a larger number will retrieve more data from the server and is 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



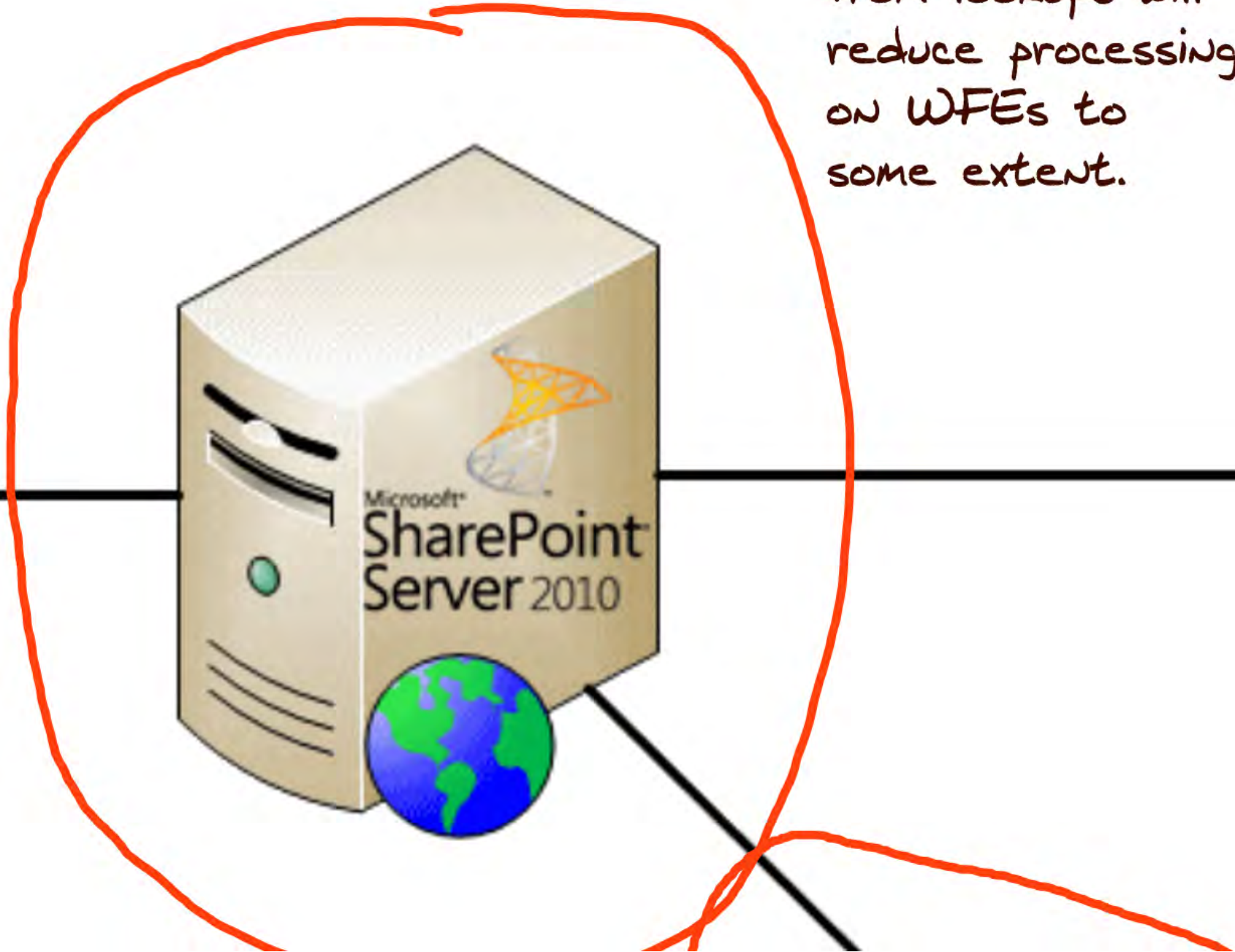
Caching results from lookups will reduce processing on WFEs to some extent.

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

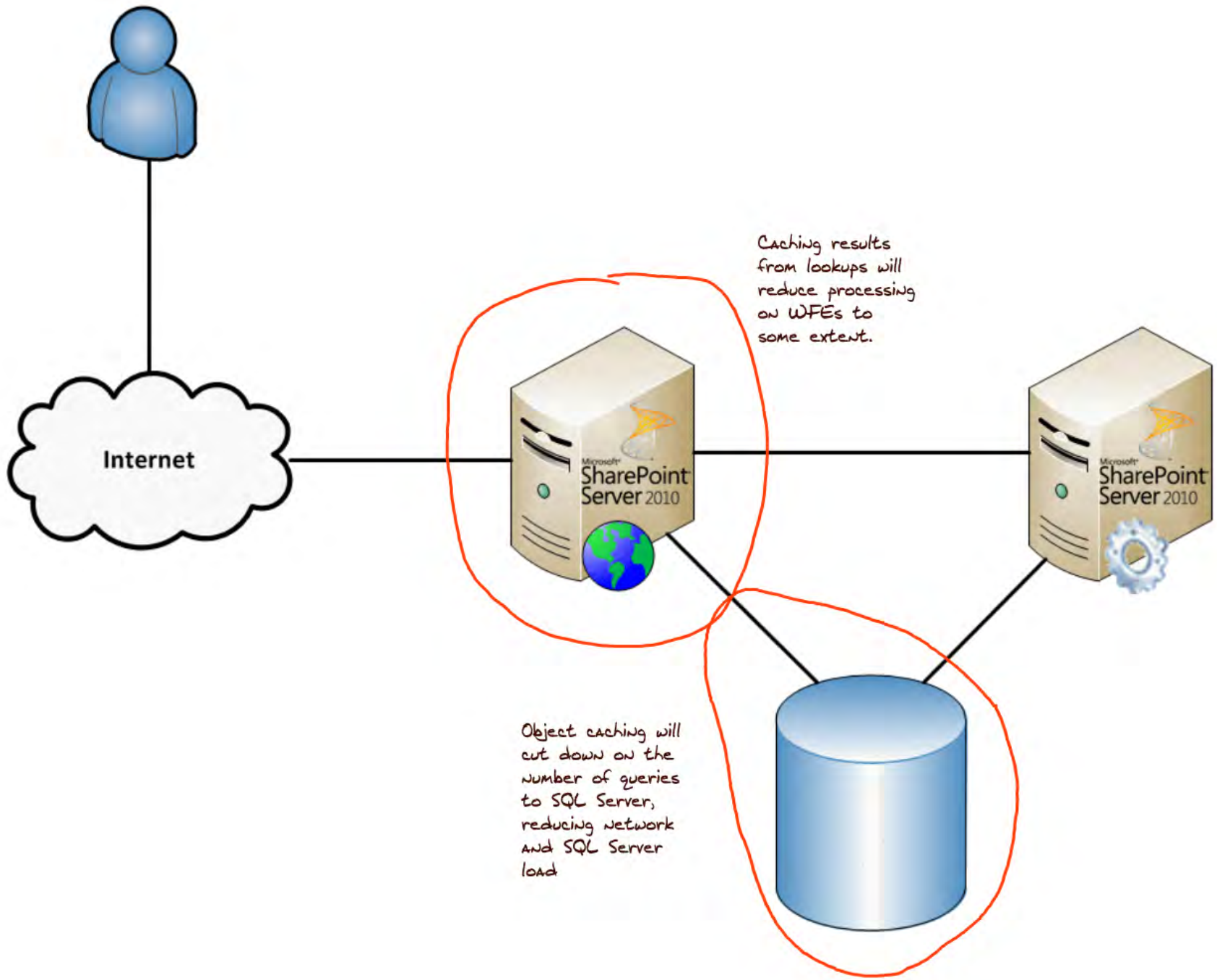
Object caching will cut down on the number of queries to SQL Server, reducing network and SQL Server load



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







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

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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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

## Problems this causes

- Items can be checked-out to the System Account in some cases, and this may force a 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

# 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

## Problems this causes

- Items can be checked-out to the System Account in some cases, and this may force a 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

## The fix

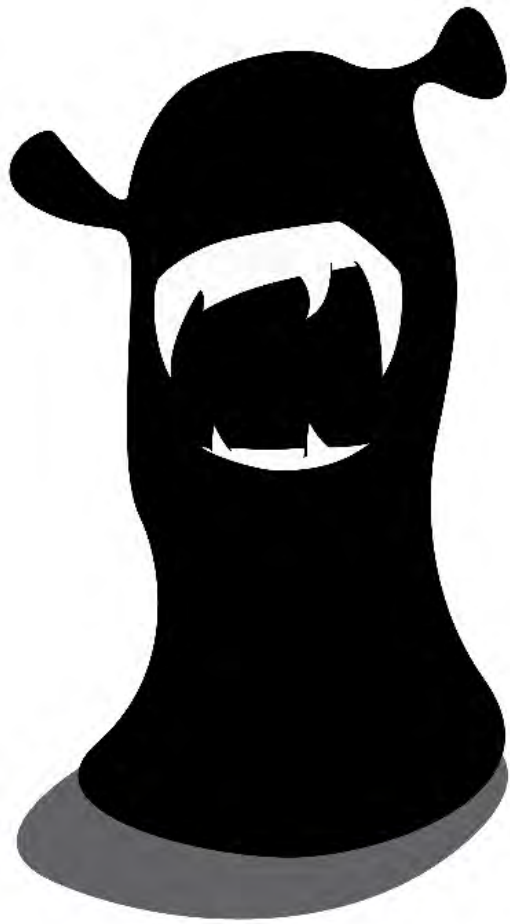
- Use PowerShell to assign domain user accounts to each role and then specify web application policies for each account

Next up ...

Next up ...



BLOB caching



No, not that  
kind of BLOB

BLOB = binary large object  
(document and attachment  
uploads to SharePoint)

teaching





FIGHT NIGHT

# FIGHT NIGHT



BLOB

VS



Blob

# FIGHT NIGHT



BLOB

VS

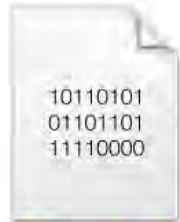


Blob

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

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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

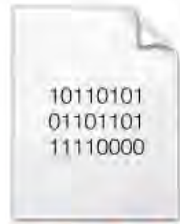
Bane of humanity

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

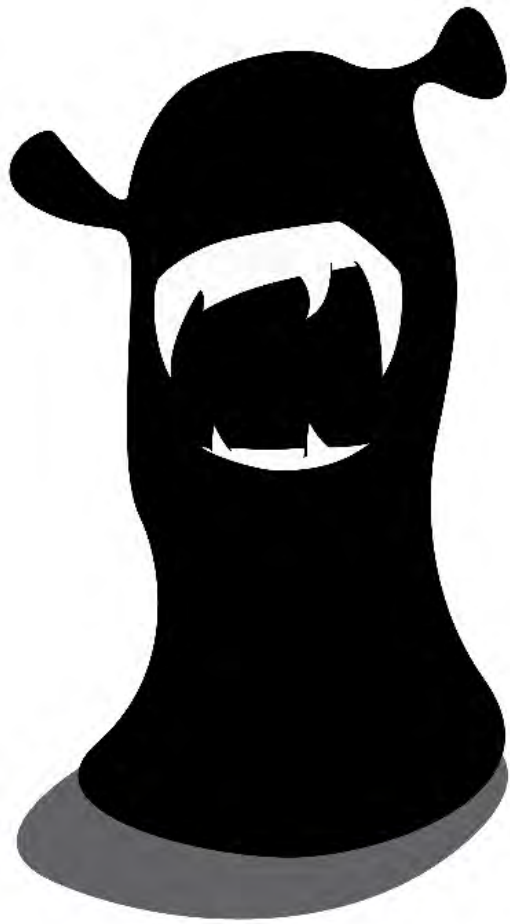
Kills attempts to organize  
database pages and extents

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

Conquered with RBS

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

**WINNER!**



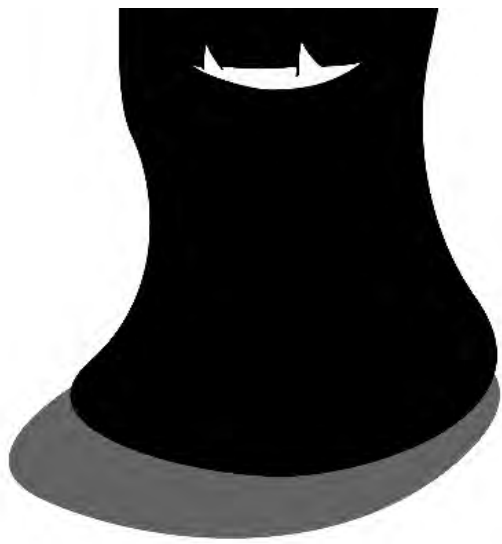
No, not that  
kind of BLOB

BLOB = binary large object  
(document and attachment  
uploads to SharePoint)

teaching







BLOB = binary large object  
(document and attachment  
uploads to SharePoint)

aching



also known as "disk-based caching"



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



# My SharePoint Site

SPDC\me

Site Actions

Search this site...

## Home

My SharePoint Site

Your SharePoint Site

Another Site

Top-Level Site > My SharePoint 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 yellow would be cached through BLOB caching.

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



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



# My SharePoint Site

SPDC\me

Site Actions

Search this site...

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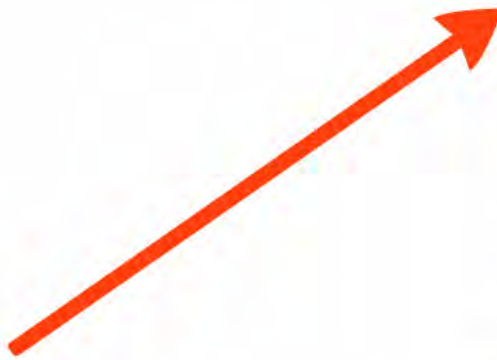
Just sit right back and you'll hear a tale, a tale of a fateful trip, That started from this tropic port, aboard this tiny ship. The mate was a mighty sailin' man, the Skipper brave and sure. Five passengers set sail that day for a three hour tour. A three hour tour.

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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

Site Actions

Search this site...

## Home

My SharePoint Site

Your SharePoint Site

Another Site

Top-Level Site > My SharePoint Site

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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 yellow would be cached through BLOB caching.

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  
115 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 Elements

# Default BlobCache Elements

MOSS 2007

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

# Default BlobCache Elements

## MOSS 2007

```
<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

## Common

enabled	true if the BLOB cache is turned-on, false if not*
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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

Recommendation:  
point at someplace  
other than C:

# 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

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

# 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*
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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

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
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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/con_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=888	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/jupload_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/jupload_files/acdf9eb5cc1b4b75e4...	5,985	max-age=2592000 Expires: Tue, 03 May 2011 20:11:19 GMT	image/gif
88	200	HTTP	/srv/jupload_files/46263a8ea7a6c1251a...	4,942	max-age=2592000 Expires: Tue, 03 May 2011 20:11:19 GMT	image/gif
89	200	HTTP	/srv/jupload_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_br1_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/boxBott...	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/kgkrogerprod/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/kgkrogerprod/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)

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/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/t.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

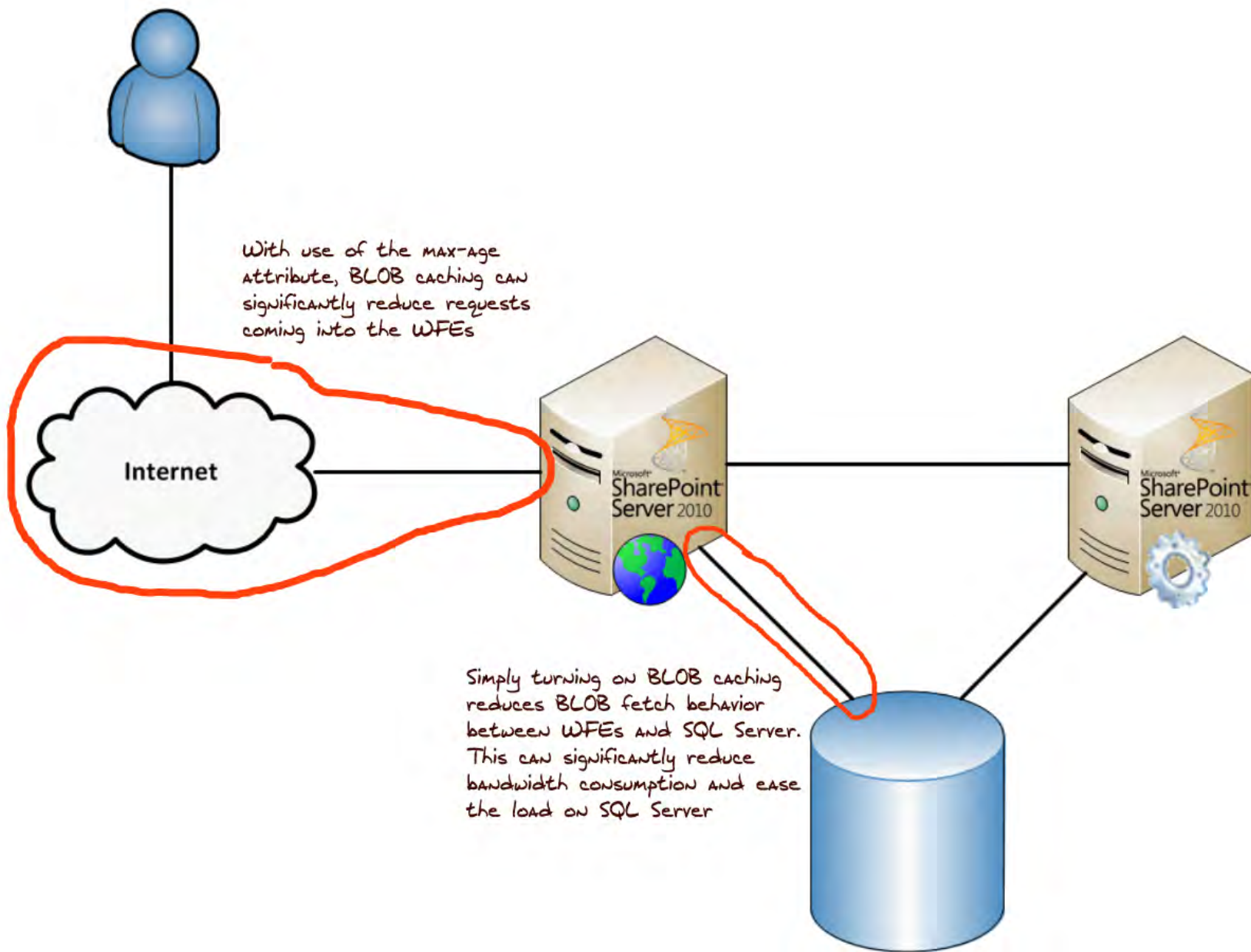


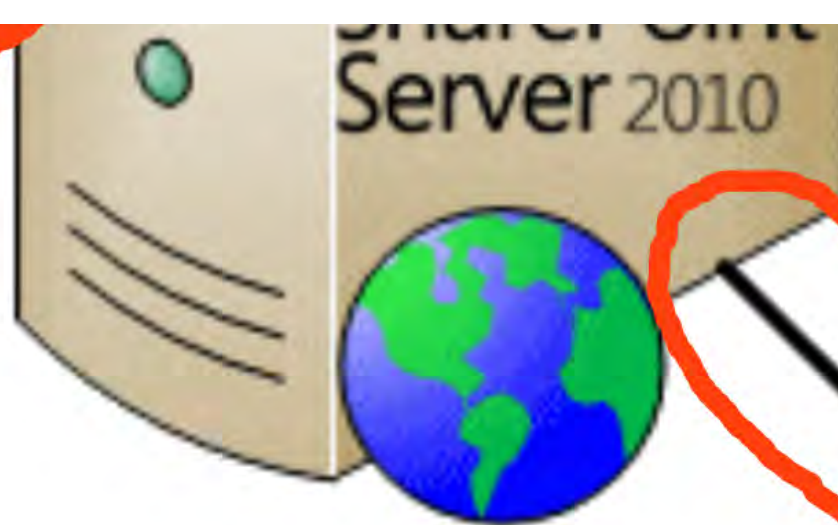
Of course, this behavior CAN work both for you AND AGAINST you ...



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

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

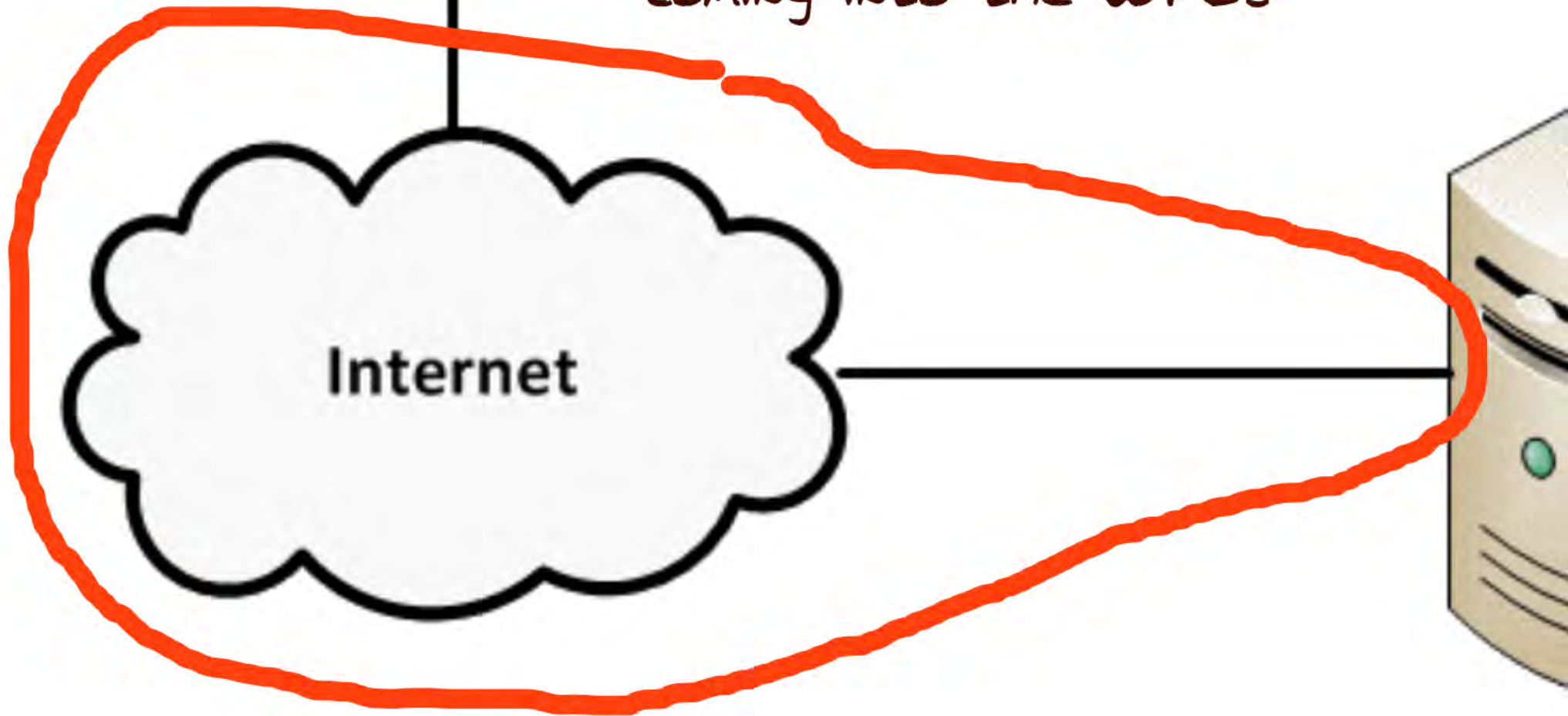


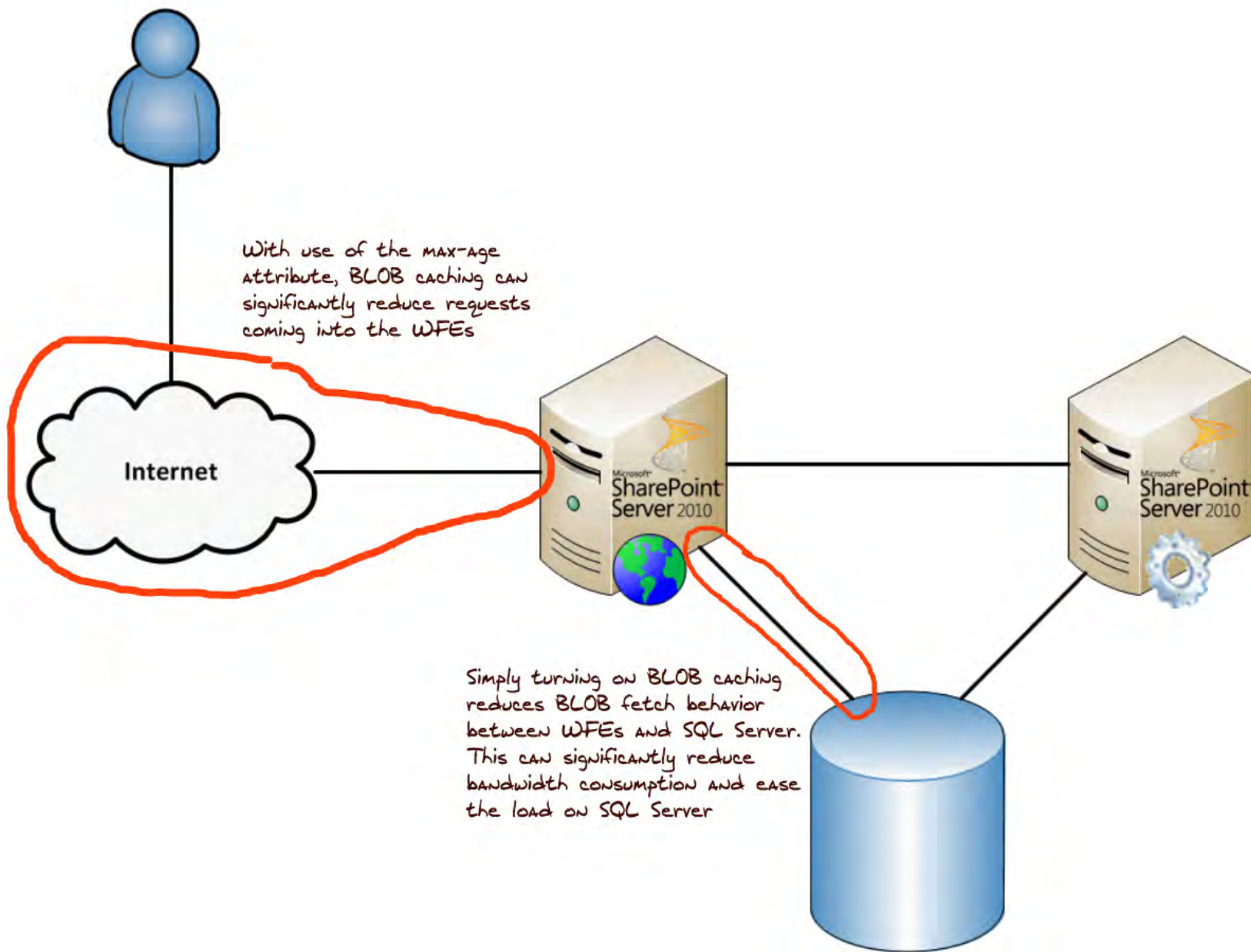


Simply turning on BLOB caching reduces BLOB fetch behavior between WFES AND SQL Server. This can significantly reduce bandwidth consumption AND ease the load on SQL Server



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, let's just say "it isn't covered by page output caching."

Top-Level Site > My SharePoint Site

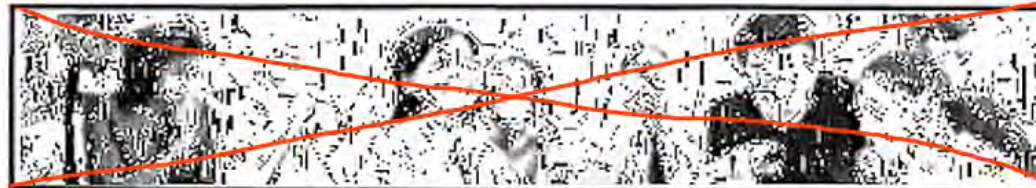
## Home

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.



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.

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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.



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, let's just say "it isn't covered by page output caching."

Top-Level Site > My SharePoint Site

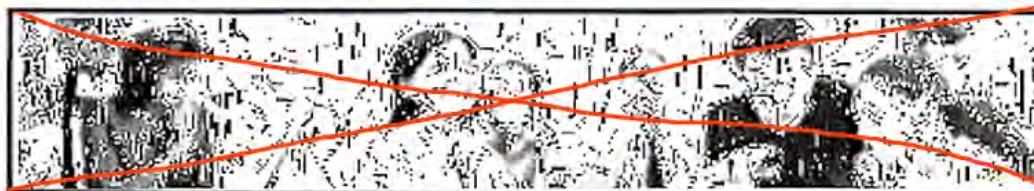
## Home

My SharePoint Site

Your SharePoint Site

Another Site

Welcome Back, Bob!



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

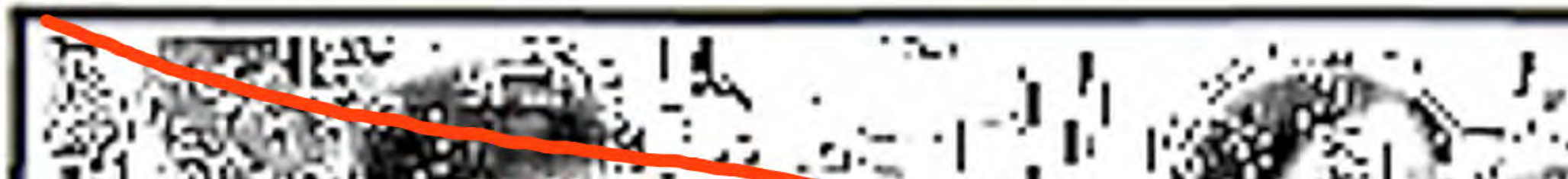
Just sit right back and you'll hear a tale, a tale of a fateful trip, That started from this tropic port, aboard this tiny ship. The mate was a mighty sailin' man, the Skipper brave and sure. Five passengers set sail that day for a three hour tour. A three hour tour.

The weather started

# Print Site

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

Welcome Back, Bob!



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="0ff1ce14-101c-0000-0000-000000000000" sourceFile="C:\Program Fi
<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>
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<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 content in the page that is rendered by SharePoint has no bearing on how items are cached or served from cache.



The Page is like a Page

Each page request is

- Characteristics are set
- These characteristics

The can

- If

# 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, the page HTML 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

Each page request is broken down into a set of characteristics

- Characteristics are selected based on page output cache profiles
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The cache is searched for a page with the key that was built

- If a page with the same key is found, the page HTML 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 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

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:

New Manage Actions Share & Track Workflows Tags and Notes

Press Releases

Recycle Bin

All Site Content

↓ Add 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



Alert Me

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.
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Content Type: Page Output Cache

Created at 2/26/2011 2:27 PM by System Account

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  
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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 List](#)

### Site Collection Administration - Output Cache Settings

Configure site-wide cache settings.

- Sean P. McDonough
- Press Releases
- Recycle Bin
- All Site Content

#### Output Cache

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

#### 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.](#)

#### 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.

#### 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 output cache

Anonymous Cache Profile

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

Selected Anonymous Cache Profile

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 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](#)



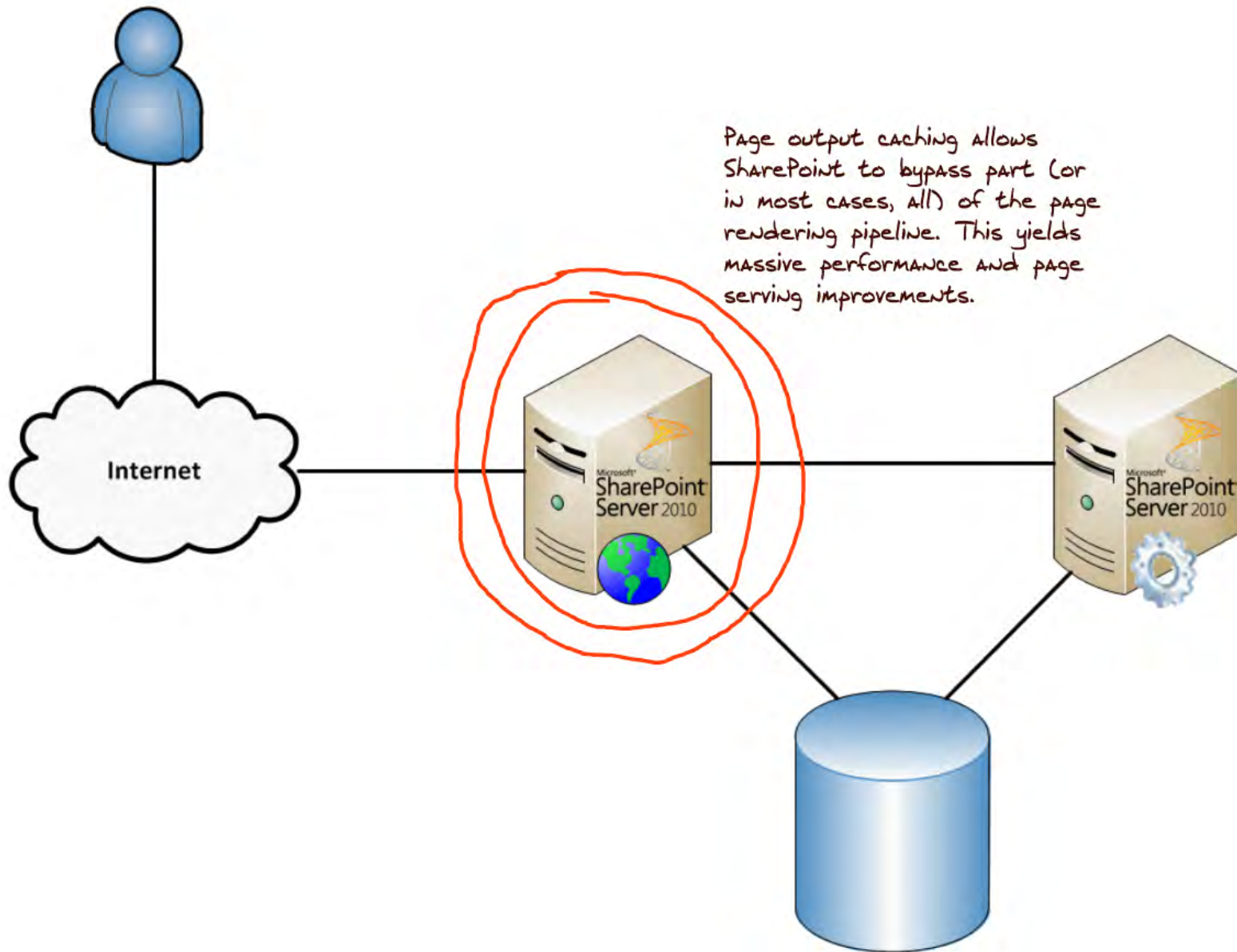
You really, really, *\*really\** need to do concurrent multi-user testing with your cache profile settings!



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

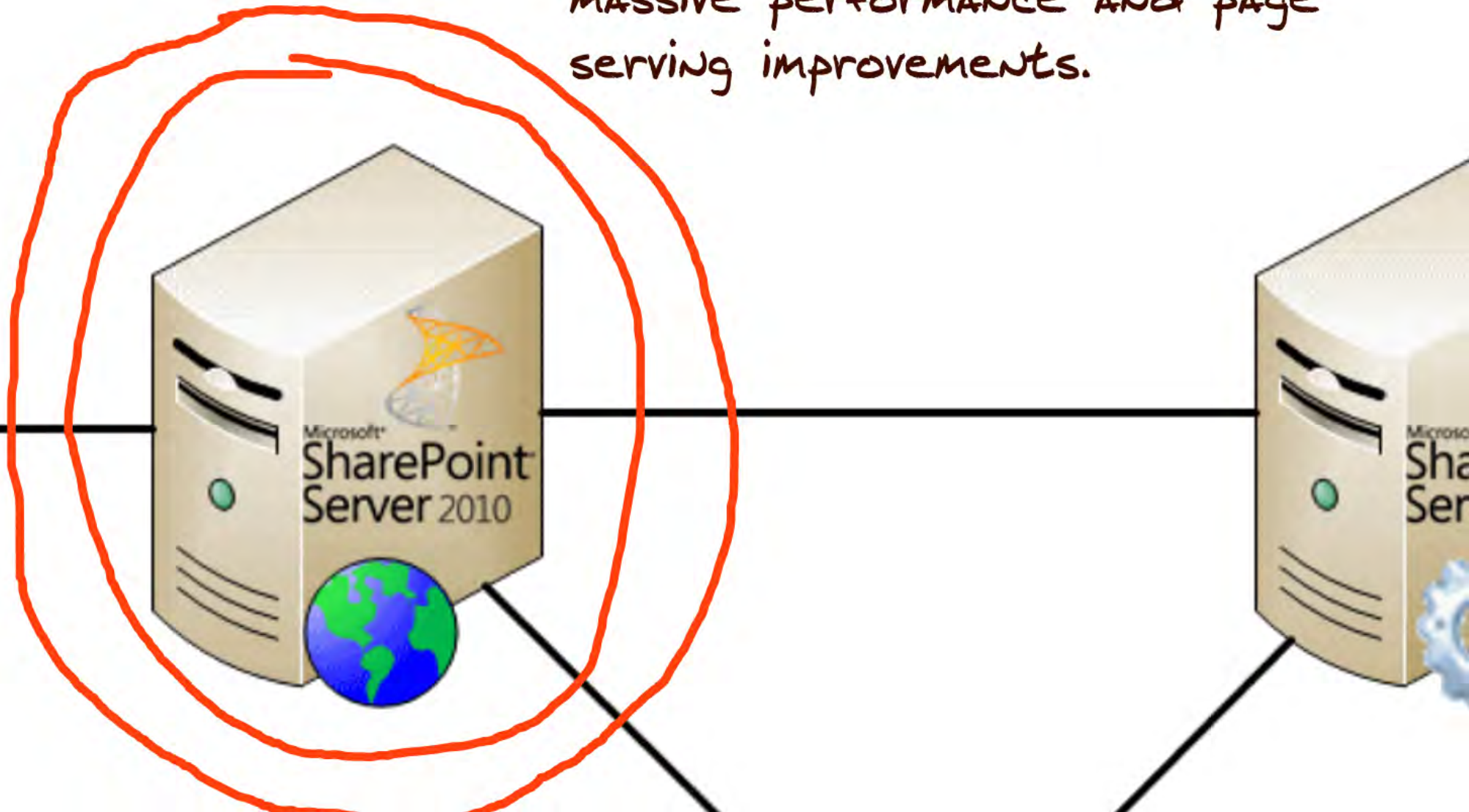


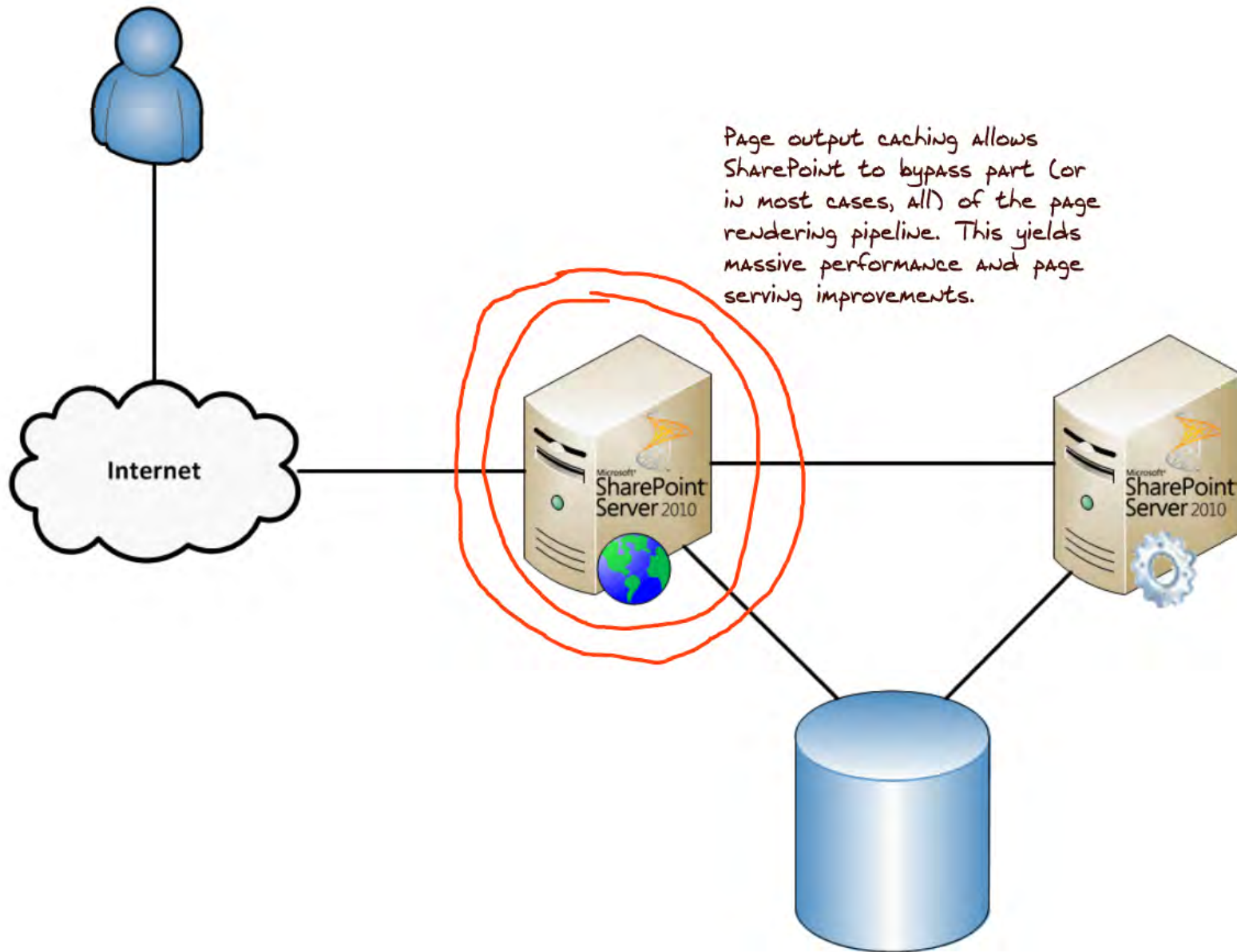
Do you sense a story coming?



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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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.



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.





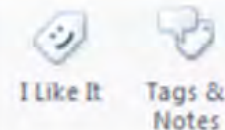
# SharePoint 2010 Only!



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



*How the cache is implemented ...*



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](#)


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

[/sites/Office\\_Viewing\\_Service\\_Cache](#)

OK Cancel

- standard Team Site (site collection)
- each Web application gets one (timer job-managed)
- can grow to consume 100 GB (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 site collection to a dedicated DB

# Recommendations



Get friendly with  
Set-OfficeSPWebAppsCache  
PowerShell cmdlet

- relocate cache site collection to a dedicated 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 site collection to a dedicated 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

## 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

## 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

## 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

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

# 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

- 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

## Observation

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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## Potential Cause

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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, let's just say "it isn't covered by page output caching."

Top-Level Site > My SharePoint Site

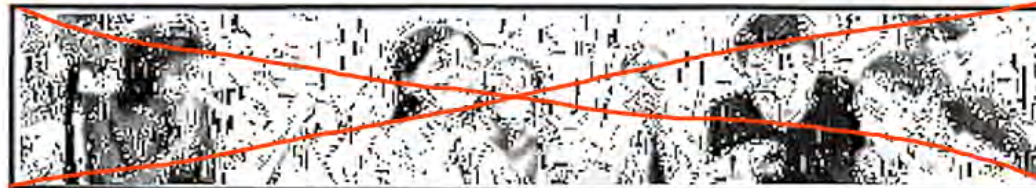
## Home

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.



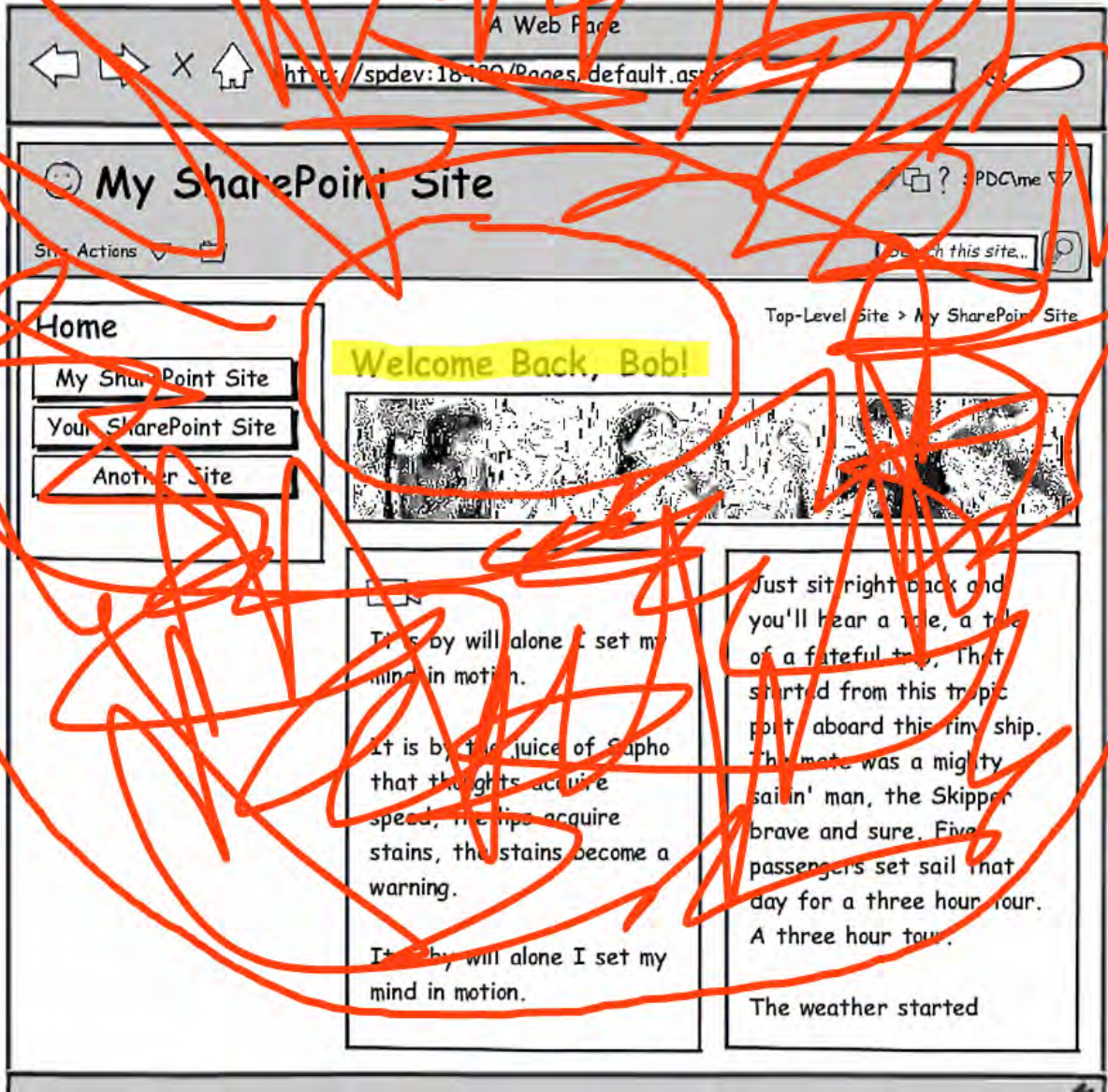
It is by will alone I set my mind in motion.

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



A Web Page

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

# My SharePoint Site

PDVme

Site Actions

Search this site..

Top-Level Site > My SharePoint Site

## Home

- My SharePoint Site
- Your SharePoint Site
- Another Site

Welcome Back, Bob!



The boy 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 the boy 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

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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



# Page output caching

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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.

# 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, BLOB caching is enabled, but images stored in site collection aren't being cached.

# BLOB caching

## Observation

Path property is set correctly, location is set correctly, BLOB caching is enabled, 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, BLOB caching is enabled, 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

## Caching in Office SharePoint Server 2007

[http://technet.microsoft.com/en-us/library/cc298466\(office.12\).aspx](http://technet.microsoft.com/en-us/library/cc298466(office.12).aspx)

## Configure cache settings for a Web Application (SharePoint Server 2010)

<http://technet.microsoft.com/en-us/library/cc770229.aspx>

## Configure object cache user accounts

<http://technet.microsoft.com/en-us/library/ff758656.aspx>

## Disk-Based Caching for Binary Large Objects

<http://msdn.microsoft.com/en-us/library/aa604896.aspx>

## Flush the BLOB cache (SharePoint Server 2010)

<http://technet.microsoft.com/en-us/library/gg277249.aspx>

## MANUALLY Clearing the MOSS 2007 BLOB Cache

<http://sharepointinterface.com/2009/10/30/manually-clearing-the-moss-2007-blob-cache/>

## MOSS 2007 Farm-Wide BLOB Cache Flushing Solution

<http://blobcachefarmflush.codeplex.com/>

## Client-Server Interactions and the max-age Attribute with SharePoint...

<http://sharepointinterface.com/2011/02/21/client-server-interactions-and-the-max-age-attribute-with-sharepoint-blob-caching/>

MANAGE the Office Web Apps cache

<http://technet.microsoft.com/en-us/library/ee837422.aspx>

Quick Tips for MANAGING the SharePoint 2010 Office Web Apps' Cache

<http://www.idera.com/News/Newsletters/Quick-Tips-for-Mnging-SP2010-Office-Web-Apps-Cache.pdf>

MOSS Object Cache Memory Tuning is not AN Intuitive Process

<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>



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**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>