CF911
COLDFUSION
PERFORMANCE
REPORT 2011
Charlie Arehart
(@carehart or charlie@carehart.org)
INTRODUCTION

- Will cover performance related changes (new features or underlying changes) in CF 9 and CF 9 Updater 1 (CF 9.01)
  - 9.01 is a free update: to be installed atop CF 9
  - Is NOT provided with new downloads of CF 9
- Resources for 9.0.1
  - Docs about changes: http://kb2.adobe.com/cps/847/cpsid_84723.html
  - See also updated docs: CFML Reference as well as Developers Guide
- Note that this talk is NOT listing all that’s new in 9 and 9.01
- Nor even all that’s new within any one feature discussed below
- Will consider first changes that are “automatic” (nothing to enable)
  - Then will look at new features/ that can help performance
- Not promising that I’ve covered *everything* that may apply
ABOUT CHARLIE AREHART

Independent Consultant
- 15 yrs CF experience (29 in Enterprise IT)
- Member, Adobe Community Professionals
- Certified Adv CF Developer, Instructor
- Frequent speaker to groups/conf’s worldwide
- Run the 2600+member Online ColdFusion Meetup (coldfusionmeetup.com)
- Living in Alpharetta, Georgia (Atlanta)

Web home at www.carehart.org
- Host ~300 blog entries, 80+ articles, 90+ presentations
- UGTV: recordings of 600+ presentations by ~300 speakers
- CF411.com - 1700+ tools/resources, 150+ categories
- Hosting courtesy of EdgeWeb Hosting
- Consulting: available for CF troubleshooting, tuning; training
  - Remote or on-site
Anyone know what was on this spot 30 years ago?
CHANGE IN PLANS

- Original plan
  - I was going to do testing via a testing lab I’d created

- And then...
  - The primary lab machine hard drive crashed 2 weeks ago
  - Spent many hours last 2 weeks resolving/rebuilding/reinstalling/reconfiguring
  - Tried recreating tests on local machine here, but that’s dicey for many reasons
  - So will talk about general performance impact of new/changed features, point to resources with more
  - Will resolve problems and rebuild tests and offer this talk on a future CFMeetup with complete results
**CHANGE IN PLANS**

- Fortunately, still plenty for us to cover
  - Performance-related changes or new features in CF 9.01, 9 and key ones in 8
- Also, there are resources you can review with many *similar* details
  - Especially two Adobe resources
    - “ColdFusion 9 Performance Brief”
    - “Performance tuning for ColdFusion applications”
  - Will show some key info, but this session is NOT just parroting that info
  - Links to these provided in “resources” at the end
CF 9.0I PERF-RELATED CHANGES

- Underlying library enhancements
  - JVM upgraded to 1.6.0_17
  - Ehcache 2.0
  - Hibernate 3.5.2
  - ExtJS 3.1
  - Solr 1.4
  - DataDirect Connect for JDBC 4.1
  - Derby 10.5.3
  - BlazeDS 4
  - LCDS 3
Server Monitor changes

- CF 9.01 does NOT fundamentally change server monitoring
- Despite assertions by many (including Adobe), monitor does NOT now run “outside of CF”
  - The gathering of data still takes place within CF, as does firing of alerts
  - The presentation of data still takes place in a Flex app, talking to CF over web
- What’s changed is OPTION to have Flex app talk to alternative new web server
  - That can be enabled within CF (as alternative to external web server like IIS/Apache, and as alternative to current built-in JRun web server), running Jetty
  - So conceivably, one could have 3 web server interfaces to CF: 2 internal, 1 external
  - Intent is that if requests are bogged down on primary web server used, alternate may work
  - Of course, if entire CF instance (especially JVM) is hung, even this web server won’t help
- Note also that you can now stop/start the 3 buttons within CF Admin
Performance improvements in the case of formatting huge number of rows and columns using the following functions:

- Spreadsheetformatrows
- Spreadsheetformatcolumns
- Spreadsheetformatrow
- Spreadsheetformatcolumn

Note that CF 9.01 now automatically logs all calls to cfhttp, cfftp, web service invocations, feeds, portlets, Derby

- In new logs (for each) stored in [cf]\logs directory
- New Admin interface icon to stop/start
- Logs not present until a request executes one of the above features
CF 9.01 PERF-RELATED OPTIONS

- Other features you can enable, with possible performance benefit
  - Support for IIS 7
  - Support for CFCs outside webroot
  - More tags implemented as script (dbinfo, imap, pop, ldap, feed)
  - Remotingfetch attribute for ORM cfc's
  - Using Amazon S3 storage (wherever FILE attribute/argument can be used)
- Caching enhancements:
  - Support for user-defined caching regions
  - diskSpoolBufferSizeMB (Size to allocate the DiskStore for a spool buffer)
Other features of note related to perf/tuning

- New ORMGetSession function (to get info on datasource not otherwise exposed)
- ORMCloseSession/ORMCloseAllSessions/ORMFlush/ORMFlushAll/ORMClearSession (manually manage ORM sessions associated with a datasource/request)
- ORMEvictQueries (evict queries, all or named, from default query cache of specified datasource)
- Changes in ORM Transaction Management

No changes in 9.01 CHF 1 of seeming significance to performance

Now let's step back to CF 9.0
CF9.0 PERFORMANCE CHANGES

- These should be of interest to those who’ve not yet moved to 9.0.1
  - Or those upgrading from CF8/earlier to either CF9 or 9.01
- (Again, focusing first on changes that are automatic)
- Adobe reported CF9 generally 40% faster than CF8, 600% faster than CF 7
- UUID creation
- CFC performance (instantiation and invocation)
  - Even faster with implicit setters/getters (both instantiation and invocation)
- Flash Remoting
- Improved quality and performance of thumbnail generation
- And more
- DataDirect driver version 4.0 SP 1
- JVM: Java 6 Update 14
CF9.0 PERF-RELATED OPTIONS

- (Features you can enable)
- Enhanced caching (via ehcache) – template and object caching
- In-memory file system – as alternative to writing/reading real files
- Tags as script
- OnServerStart – useful to “warm up” slow-to-load apps/frameworks
- ORM
- New Ajax controls – beware of frequent calls back to server
- New Admin Datasource setting to set query timeout
- Use ORM EntityReload only if necessary
CF8 PERF CHANGES TO KEEP IN MIND

- **CFDOCUMENT localurl attribute**
- **Bug in original JVM (1.6.0_01 or _04 for 8.0.1)**
  - Note that Adobe recently recertified CF 8, 8.0.1, 9, and 9.0.1 for _24
- **OnSessionStart and OnApplicationStart in application.cfc**: no need to lock variables set there (good reason to use that and lessen lock need)
- **imageResize function** has “highperformance” value for interpolation arg
- **Ajax controls** that support autosuggest
  - Every character typed sends request back to server
  - Consider use of autosuggestMinLength and autosuggestBindDelay attributes of CFINPUT (defaults are 1 character and .5 seconds, respectively)
- **Consider file…() functions versus CFFILE**
WHAT ABOUT ZEUS?

- Not released as of creation of this presentation
  - Though some information has been shared by Adobe
  - Again, focus here is solely on things that seem related to performance
- JRun 4 to be replaced by Tomcat 7 as underlying java server engine
  - Generally regarded by most to be a better, faster, more lightweight, yet capable servlet engine
- Web services engine updated to Axis 2
Hardly ever, in my experience as a troubleshooting consultant, I help different people nearly every day with servers crashing, hanging, performing poorly.

- Honestly, problems are hardly ever due to coding.
- Instead, far more typically about configuration (CF, DB, web server, network, etc.).
- Challenges more about understanding how to make use of available diagnostics:
  - Logs, monitors, tools
- And understanding fundamentals like reaching max simultaneous requests
- Or memory-related problems (and not all outofmemory errors mean increase heap!)
CONSIDER THESE DRAGS

- Strong potential negative impact by enabling CF Enterprise Server Monitor’s “Memory Tracking” feature
  - Also, depending on amount of query processing, “Profiling” may also impact
- Impact of things like framework debugging/development mode options being enabled
- Problem in CF 9 with IIS: CF gets no more than 25 requests at once
  - See http://tinyurl.com/cf-iis-maxthreads
- Problem enabling Tailview in CFBuilder 1 to watch CF logs
  - Tweak recommended there is implemented by default in CFB2:
SOME GENERIC PERFORMANCE ISSUES

- Impact of use of client variables
  - Regardless whether using DB or registry for repository
    - Even worse if using "registry" in *nix, as instead it's just a flat file
  - Issue is not "are you using them", but have you enabled them
  - If so, then by default, every page request to that app updates repository
    - And spiders/bots/automated requests will typically INSERT new record per request
    - And CF wakes up every 67 minutes to purge the repository for 90-day old entries

- Impact of spiders/bots/automated requests on sessions
  - Admin defaults may not suit your environment
    - JVM heap size
    - Max number of simultaneous (and other types of) requests
    - Trusted cache, Save Class Files
    - Turning off CF debugging (not just limiting IP addresses)
TOOLS TO HELP

- **CF monitoring**
  - CF Enterprise Server Monitor
  - FusionReactor
  - SeeFusion
  - Other tools with more limited focus (or tighter focus on some things: jvm, etc.)

- **Load testing**
  - JMeter
  - WebServer stress (Paessler)
  - Web Performance Load tester
  - Many others, see [http://www.cf411.com/#loadtest](http://www.cf411.com/#loadtest)
WHAT WE DIDN’T COVER

- I just think some common recommendations are of negligible value:
  - Scoping variables
  - Removing needless pound signs
  - CFIF vs if()
  - Use of evaluate()
  - Compare() vs IS NOT
  - ListFind vs CFIF x is “a” or x is “b”

- Some other concepts worth considering
  - Query Caching
  - Template/content caching
RESOURCES

- General CF tuning resources
  - ColdFusion 9 Performance Brief (Adobe)
  - Performance tuning for ColdFusion applications (Adobe)

- Some particular resources on newer perf-related features
  - Rob Brooks-Bilson on ehcache features of CF 9/9.01 (including 9-part overview)
    - rob.brooks-bilson.com/index.cfm/Caching
CF PERF BLOGGERS

- CF Perf Bloggers
  - Mike Brunt - http://www.cfwhisperer.com
  - Mark Kruger - http://www.coldfusionmuse.com/
  - Steven Erat - http://www.talkingtree.com/blog/
  - Alagad - http://blog.alagad.com/category/The_Server_Side/
  - Yours truly - http://www.carehart.org/blog

- CF Bloggers doing series on load testing (first entry given below)
  - Again, see other load testing tools http://www.cf411.com/#loadtest
STILL MORE HELP

- My own other resources
  - http://www.cf911.com site (for now, wiki being built out with info and resources)
  - http://www.carehart.org/presentations - occasional performance/troubleshooting talks
  - My @cf911 Twitter account - sharing such info from myself and others

- Also available for ColdFusion and CFBUILDER troubleshooting
  - Remote or on-site
  - No time minimum, satisfaction guarantee
  - Also available “CFBuilder fixed fee solution for one problem”, up to a max of 2 hours
  - http://carehart.org/consulting/

- I’d really appreciate your feedback on the session
  - charlie@carehart.org, @carehart, linkedin.com/in/carehart
  - http://carehart.org/feedback/