

# CF9 | | COLDFUSION PERFORMANCE REPORT 20 | |

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# 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
  - ▶ [http://www.adobe.com/support/coldfusion/downloads\\_updates.html#cf9](http://www.adobe.com/support/coldfusion/downloads_updates.html#cf9)
    - ▶ Docs about changes: [http://kb2.adobe.com/cps/847/cpsid\\_84723.html](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](http://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



# ON THIS SPOT 30 YEARS AGO

- ▶ 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 9.01 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

# CF 9.0.1 PERF-RELATED CHANGES (CONT)

- ▶ Server Monitor changes
  - ▶ CF 9.0.1 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



# CF 9.0.1 PERF-RELATED CHANGES (CONT)

- ▶ Performance improvements in the case of formatting huge number of rows and columns using the following functions:
  - ▶ Spreadsheetformatrows
  - ▶ Spreadsheetformatcolumns
  - ▶ Spreadsheetformatrow
  - ▶ Spreadsheetformatcolumn
- ▶ Note that CF 9.0.1 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 9.0 | 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 enhancement:s
    - ▶ Support for user-defined caching regions
    - ▶ diskSpoolBufferSizeMB (Size to allocate the DiskStore for a spool buffer)

# CF 9.01 PERF-RELATED OPTIONS (CONT)

- ▶ 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 I 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 9.0.1
- ▶ (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
  - ▶ <http://www.rupeshk.org/blog/index.php/2010/05/entityreload-and-performance/>

# 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

# IS CODING REALLY THE PROBLEM?

- ▶ 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
  - ▶ <http://www.rupeshk.org/blog/index.php/2010/05/cfbuilder-tip-tailview-can-kill-server-performance/>
  - ▶ 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.)
    - ▶ see <http://www.cf411.com/cfmon>
- ▶ Load testing
  - ▶ JMeter
  - ▶ WebServer stress (Paessler)
  - ▶ Web Performance Load tester
  - ▶ Many others, see <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 iif()
  - ▶ 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)
    - ▶ [www.adobe.com/products/coldfusion/pdfs/cf9\\_performancebrief\\_ue.pdf](http://www.adobe.com/products/coldfusion/pdfs/cf9_performancebrief_ue.pdf)
  - ▶ Performance tuning for ColdFusion applications (Adobe)
    - ▶ [http://www.adobe.com/devnet/coldfusion/articles/coldfusion\\_performance.html](http://www.adobe.com/devnet/coldfusion/articles/coldfusion_performance.html)
    - ▶ <http://www.adobe.com/devnet/coldfusion/performance.html>
    - ▶ <http://ria.dzone.com/articles/improving-coldfusion-performance>
- ▶ 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](http://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/>
- ▶ WebApper: - <http://www.webapper.com/blog/>
- ▶ Steven Erat - <http://www.talkingtree.com/blog/>
- ▶ Alagad - [http://blog.alagad.com/category/The\\_Server\\_Side/](http://blog.alagad.com/category/The_Server_Side/)
- ▶ Rupesh Kumar - <http://www.rupeshk.org/blog/index.php/category/performance/>
- ▶ Yours truly - <http://www.carehart.org/blog>

## ▶ CF Bloggers doing series on load testing (first entry given below)

- ▶ <http://www.coldfusionmuse.com/index.cfm/2011/7/25/web-site-testing-with-jmeter>
- ▶ <http://blog.alagad.com/2009/05/12/site-testing-with-apache-s-jakarta-jmeter/>
- ▶ 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](mailto:charlie@carehart.org); @carehart, [linkedin.com/in/carehart](https://www.linkedin.com/in/carehart)
  - ▶ <http://carehart.org/feedback/>