

CF911: Pinpointing and Resolving ColdFusion Performance Issues



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Audience

- Assume no prior experience w/ CF server troubleshooting
 - Yet many topics will be new to experienced folks
- Nearly all concepts will apply to any form of deployment
 - Standard/Server, Multiserver/Instances, EAR/WAR
- And most also will apply on any Operating System
 - And indeed on any of the CFML engine alternatives
- Sharing my experience helping people daily at all skill levels
 - My goal always is to help educate, not just solve problems

About Charlie Arehart

Independent Consultant

- 13 yrs CF experience (27 in Enterprise IT)
- Member, Adobe Community Professionals
- Certified Adv CF Developer (4-8), Cert. Adobe Instructor
- Frequent speaker to user groups, conferences worldwide
- Run the 2500-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 500+ presentations by ~250 speakers
- CF411.com – 1,200+ tools/resources in 125+ categories
- CF911.com – coming soon
- Hosting courtesy of EdgeWeb Hosting
- Consulting: available for CF troubleshooting, tuning; training
 - Remote or on-site

What's the real problem?

"Server down" may not be what you think

- Has CF crashed, been stopped, or is it merely unresponsive?
 - Big difference among these
- Are all requests hung? Or are no requests running at all? Are some?
 - Again, big difference. You need to use tools to see.
- What's the right solution? Change JVM settings? Admin settings? Tweak code?
 - Stop. Take a breath.
 - Find the right diagnostics, connect the dots, apply a solution

Basic tools to consider

What works and what does not

- Task Manager/Processlist
 - Can be misleading
- CF logs
 - Not generally as helpful
- JRun/CF runtime/stdout/console logs/cfserver.log
 - These are often vital. For some problems, first place to look
- CFSTAT/perfmon
 - Useful option, not in multiple instances or J2EE deployment
- JRun metrics
 - Can be setup in any version of CF
 - Tomcat approximate equivalent using jmxproxy, specifically:
[server]/manager/jmxproxy?qry=*:type=GlobalRequestProcessor,name=http-[port]

Basic tools to consider

What works and what does not

- PID (hotspot compiler) logs
 - Often missed (in same dir as jvm.config)
- Web server logs (IIS, Apache)
 - Can show what requests are running, how long, how often
 - Also maybe ip address, user agent, which can be important
- CF monitoring tools
 - Free and commercial
- JVM monitoring tools
 - Not always easy to use, especially for CF running as service
- Will discuss tools to view running requests later

Server crashed/crashing?

Some common problems

- Out of memory? What kind?
 - Heap? Permgen? Out of swap space? Unable to create new native thread?
 - Each very different, different solutions.
 - What they mean, how to determine, how to resolve
- Why "high memory" is not necessarily a problem
 - How JVM may just be lazy, and a forced garbage collection may recover no-longer-"used" memory
- What can be holding memory, if GC does not resolve things?
- CPU spinning wildly?
 - What might be root cause?

All or some requests hung?

Understanding things better

- How to see count (without details about each)?
 - CFStat, JRun metrics, JMXProxy on Tomcat, or CF monitors
- Are all requests hung?
 - They're likely all waiting for something (long running cfquery, cfhttp, cflock, etc.)
- Are only *some* requests hung?
 - Some could be getting through while others are hung
 - Means problem is only with some applications/pages/sites
- Are requests not timing out when expected? Why not?
 - Are you trying to kill requests? Why don't they die?

Tools to help view/diagnose hung requests

What's really happening now

- Tools to view running requests:
 - CF Server Monitor, FusionReactor, SeeFusion, Java tools
 - FusionReactor works also with Railo, OpenBlueDragon
 - It even can monitor non-CFML java server apps
- Tools to view history of past requests
 - Monitors, alerts, logs
- Tools to stack trace running requests
 - Live, or via email

Are no requests running at all?

Things to suspect/investigate

- Web server connector
- Web server itself
- Load balancer
- Network

Other areas of related concern

Some things people often miss

- Applying hotfixes, cumulative hotfixes
 - making sure you don't apply for wrong release
- Updating to free CF updaters (7.0.2, 8.0.1, 9.0.1)
- How even download today does not get you latest version, hotfixes
- JVM update: why, how
 - JVM class loading bug affecting CF 8, 8.0.1
- CF admin settings to watch

Other areas of related concern

(cont.)

- Impact of client variables, even if you "don't use them"
- Impact of spiders/bots/automated request tools
 - Sessions and client vars
- Consider setting for simultaneous requests
- MaxWorkerThreads default setting of 25 in CF9
- File uploading memory bug and fix CF 7/7.0.1/7.0.2 (no fix for 6/6.1)
- Why CF may sometimes not stop when you request it
 - and why sometimes when you restart it, a flood of requests could hurt

What did we not discuss?

And why not?

- JVM tuning
- Code review/tuning
- SQL tuning (reduce data returned)
- DB tuning (indexing, etc.)
- Caching (of all sorts)
- Hardware/Architecture, Clustering, Load Balancing
- Switching CFML engines

Where to learn more?

- There are many resources, mine and others
 - And I have many which point to those of others
- cf911.com – wiki of troubleshooting tools / resources
- carehart.org – repository of my past contributions, blog
- cf411.com – repository of general CF tools resources
 - Points to many other resources, by others at conference
 - Includes many categories related to monitoring, performance, troubleshooting

Key take-aways

- We covered a lot!
- Some of these are well understood, some surprise many
- Find the real problem: may not be what you think
- Use available diagnostics: what works and does not
- Common problems when “server is crashing”
- All/some requests hung? No requests running?
- Tools to help view/diagnose hung requests
- Other areas of concern

Hope everyone learned at least something

- Enjoy the rest of the conference
 - Other related sessions here:
 - ColdFusion Battle Room, Mark Kruger (TCCFUG Wed night)
 - Database Performance Tuning, Daryl Banttari
 - Designing for Scalability in ColdFusion, Tim Meyer/Ted Steinmann
 - Load Testing ColdFusion Applications Effectively Mike Brunt
 - Scaling CFML Applications, Gert Franz
 - SQL Performance for the Common Man, Brandon Moser
- Don't forget to fill out evals!
- Finally, I'm also available to help you or your team
 - On-demand, remote, fast CF troubleshooting
 - More at carehart.org/consulting