CF911: Tools and Techniques for Troubleshooting

Charlie Arehart
Independent Consultant
charlie@carehart.org

Produced April 15, 2009
Topics

- Introduction
- Tools for Troubleshooting CF and Others
- Logs and Log Analysis
- Resources for Learning More
About Charlie Arehart

Independent Consultant since Apr 2006
12 yrs CF experience (26 in Enterprise IT)
• Member, Adobe Community Experts
• Certified Adv CF Developer (4–8), Cert. Adobe Instructor
• Frequent speaker to user groups, conferences worldwide
• Run the Online ColdFusion Meetup (coldfusionmeetup.com)
• Living in Alpharetta, Georgia (Atlanta)

Web home at www.carehart.org
• Host ~300 blog entries, 70+ articles, 90+ presentations
• UGTV: recordings of 300+ presentations by ~200 speakers
• CF411.com – 700+ tools/resources in 100+ categories
• Consulting: available for CF troubleshooting, tuning; training
  • Remote or on-site
Talk is focused on typical CF shops
- Generally lacking anyone to help resolve problems
- Or with skills, but lacking insight into what’s going on with the server
- Goal is to show tools, resources to help with problems

Audience contains some knowing much, others struggling to get by managing CF servers
- May cover some topics you may already know
  - or may not offer enough detail for your level of experience
  - Will provide many resources to learn more

Most topics apply to any version of CF
- Many also apply to Railo, BlueDragon
Introduction
When the stuff hits the fan with a CF Site, you want to know what went wrong, and why

In these situations, helps to know:
  ◦ How to track errors and other diagnostics in CF, web server, DB, and system
  ◦ Where to look, what to look for
  ◦ Options for monitoring CF and page request processing
About This Talk

- Key is knowing available tools to use
  - Some free, some commercial
  - Some work with CF, some are not specific
- And knowing available logs, how to find them
- This talk identifies these tools and logs
  - Talk is a condensed subset of my day-long class on CF troubleshooting
  - Don’t have time here to demonstrate each tool, log
  - Goal is to point them out, share some tips
  - Will point you to resources to learn more about each tool mentioned
Tools for Troubleshooting CF
Free CF Troubleshooting Tools

- **CFSTAT**
  - Reports high-level measures: number of requests running, queued, avg req time, avg db time, more
  - Command line tool, found in `[cf]\bin\`

- **CF Performance Monitor stats**
  - Provides CFStat measures in Windows PerfMon

- Above features enabled in CF Admin (debugging page)
  - **Not available** in multiserver/multi-instance mode
  - **Beware:** avg’s are over last 2 requests, not over last interval!
Free CF Troubleshooting Tools (cont.)

- GetMetricData CFML function
  - “perf_monit0r” argument: same data as CFSTAT
  - “simple_load” argument: a simple load measure

- JRun metrics
  - Can be enabled on any CF edition (6–8) to add a line at regular intervals to track current state
    - Including threads, memory usage, J2EE sessions, more
  - More at:
    - http://tutorial351.easycfm.com/
    - http://www.adobe.com/go/tn_19120
    - http://www.bpurcell.org/blog/index.cfm?mode=entry&entry=991
Free CF Monitoring Tools

- **CF8 Server Monitor** (CF8 Enterprise, Developer editions)
  - See my 4-part article series in the Adobe Dev Center, starting at:
    - http://www.carehart.org/articles/#2007_2
  - Only available with CF8 Enterprise
    - Can only monitor CF8 Enterprise servers
  - More in a moment

- **Admin API**
  - All the information in the CF8 monitor is also available programmatically in the Admin API
    - Example shown in my article series (part 4)
    - Again, though, only in CF8 Enterprise
Commercial CF Monitoring Tools

- If not on CF 8 Enterprise, other tools provide similar (and in some ways different) CF Monitoring
  - FusionReactor (fusion-reactor.com)
  - SeeFusion (seefusion.com)
  - These both work with CF 6, 7, and 8
    - Both have free trials
    - Should also work with OpenBD, Railo
    - Even valuable on CF 8 Enterprise for added features
- What do these monitoring tools have in common? ...
About CF Monitoring Tools

- All 3 CF monitors really open the black box of CF
  - See all currently running requests
    - Can terminate long-running ones
  - View past long-running requests (while server is up)
  - See details of each query executed in each request
  - See “stack trace”: line of code being executed now
- CF8 monitor can view all sessions, applications, and more
- …also
FusionReactor and CF8 monitor can be configured to send email notifications of problem states
  ◦ Requests taking too long, too little memory, etc.
FusionReactor also
  ◦ Writes out substantial log files
  ◦ Can run scripts when monitored server stops/starts
  ◦ And much more
More at
  ◦ FR: http://www.carehart.org/articles/#2007_2
  ◦ CF8: http://www.carehart.org/articles/#2008_6
Other CF Troubleshooting Tools

- Still other free tools exist, with more limited focus
- **ColdFusion AJAX System Monitor**
  - Free from Steve Brownlee
- **FlexMon CF monitor**
  - free from Tariq Ahmed
- **Scope Enhancer**
  - Free from Steve Brownlee
- **ServerStats**
  - free from Mark Lynch
- **WhosOn CFC**
  - free from Shane Zehnder
- URLs for these listed at http://www.cf411.com/#cfmon
Tools for Troubleshooting Others
Generic Server Monitoring Tools

- Tools to track how the server and its processes are performing
  - Windows Task Manager
  - Better still, SysInternals Process Explorer
    - Powerful replacement for Task Manager
  - SysInternals Process Monitor
    - Combines former Filemon, Regmon tools
  - Windows Performance Monitor
    - On Vista/7/2K8, see improved interface
  - Many similar tools for Linux, OS X
  - Many other commercial and free system monitors
- More at cf411.com/#sysmon
Web Server Request Monitoring Tools

- Tools to track how requests are being handled by web server
  - IISTRacer, commercial (free trial), for IIS
  - ManageEngine ApplicationsManager
    - free and commercial tool, from AdventNet
    - includes specific support for managing IIS, Apache, web services, and more

- More at cf411.com/#wsmon

- Not to be confused with Web Site Uptime Monitoring tools (cf411.com/#sitemon)
Many tools can monitor any Java application
- So can be used to monitor CF apps as well
- Some are deployed as WAR files
  - may be challenging to deploy/configure on CF Standard or Enterprise/Dev Server Deployment

GlassBox, JaMonAPI, JManage (open source)
ManageEngine ApplicationsManager (free and commercial tool)
- includes specific support for JBoss, Tomcat, GlassFish, WebLogic, WebSphere, Oracle Application Server, and .NET

More at cf411.com/#appmon
Monitoring HTTP Request/Response Content, Timing Tools

- Client-side proxy/request monitoring tools
  - Fiddler, Firebug, ColdFire, Yslow, others (free)
  - Charles, ServiceCapture, others (commercial)
  - And more at cf411.com#proxy

- Consider also “TCP Monitor” (aka Sniffer), built into CF/JRun
  - CF Developer’s Guide
Database Monitoring Tools

- Free
  - SQL Server Profiler, SQL Server Trace
  - Simple SQL Server Monitor
  - MySQL Monitor, Mytop, Spotlight on MySQL

- Commercial
  - Spotlight on SQL Server, DB2, Oracle, etc.
  - MySQL Enterprise Monitor, MonYog (for MySQL)
  - Confio Ignite (for multiple DBMSs)
  - Many more at cf411.com/#dbmon
Java Monitoring/Profiling Tools

- There are also many java monitoring/profiling tools
  - Some built-into the JVM, some external
  - These might have value, but can be difficult to connect info in some to the internals of CF

- Alternatives include:
  - hprof, jconsole, jhat, jinfo, jmap, jps, jstack, jstat, visualgc (and related jvmstat), and visualvm
    - All built into Java, some only 1.5+
  - HPJMeter, HPJTune (free)
  - JProbe, JProfiler (commercial)
  - And more at cf411.com/#javamon
Logs and Log Analysis
May be more than you realize

[cf]\logs
- application.log
- derby.log (cf8)
- eventgateway.log (cf7 Ent., 8)
- exception.log
- flash.log
- mail.log
- mailsent.log (if enabled in Admin)
- monitor.log (cf8 Ent.)
- print.log (cf8)
- scheduler.log (if enabled in Admin)
- server.log
CF Logs (cont.)

- More important, still...
- CF runtime error logs
  - `[cf]\runtime\logs`
  - Or `[jrun4]\logs` in Multiserver (Multi-instance) mode
  - Various logs: –event, –err, –out.log files

Note

- Controlling size of out logs:
  - http://www.adobe.com/go/8698aeb8
- Can modify CF so that different files hold different log info levels (info, debug, metrics, etc.)
**CF Logs (cont.)**

- Consider also...
- **CF/Web Server Integration logs**
  - `[cfroot]\runtime\lib\wsconfig\wsconfig.log`
  - `[cfroot]\runtime\lib\wsconfig\1\LogFiles\`
  - Or in Multiserver (Multi-instance) mode, see `[jrun4]\lib\wsconfig\ directory`
CF Logging Options

- Be aware of ...
- Debugging & Logging > Logging Settings
  - “Log slow pages taking longer than X seconds”
  - “Enable logging for scheduled tasks”
- Server Settings > Mail > Mail Logging Settings
  - “Error Log Severity”
  - “Log all mail messages sent by ColdFusion”
- Datasource “Advanced Settings”
  - “Log Activity”
    - Writes substantial amount of data about connection to database, including all data returned
    - Note: need to name directory AND filename
Tools to Read CF Logs

- Flogr, free from Scott Stroz
- Slow Pages Parser, free from Ray Camden
- Eclipse CF Log Viewer, free from Adobe
- URLs for these at cf411.com/#cflog
FusionAnalytics

- New tool coming from Intergral
  - Makers of FusionReactor
- Powerful tool that solves problem of server analysis over CF restarts
  - Saves you the hassle of reading log files
  - Does powerful analysis across many logs
    - CF
    - FusionReactor
    - Others will be added
- Designed to permit you to point to new logs
- More at http://www.fusion-reactor.com/labs/analytics.cfm
Other Logs

- Web Server Logs
  - In IIS, consider especially HTTPErr logs
- Database server logs
- Windows Event Logs (see Event Viewer)
- Windows Performance Monitor and logging options
- Equivalents on other OS platforms
- FusionReactor logs
- Verbose Garbage Collection logging
Free Generic Logging Tools

- Universal Viewer (ATViewer), free
- Log Parser, free, from Microsoft
- Sawmill Universal Log File Analysis & Reporting, commercial
- And more at cf411.com/#genlog
- Many web server log analysis tools, of course
  - Google Analytics
  - AWStats, Webtrends, Analog, etc.
  - And more at cf411.com/#webanal
Resources
Resources for CF Tuning

- Grant Straker’s “ColdFusion MX: Performance Troubleshooting and Tuning Guide”
  - Website and accompanying PDF ($50)
  - http://www.cfperformance.com/

- Bloggers prone to write about CF troubleshooting, tuning
  - “Sarge” – http://sargeway.com/blog/
  - Brandon Purcell – http://www.bpurcell.org/blog/
  - Steven Erat – http://www.talkingtree.com/blog/
  - Mark Kruger – http://www.coldfusionmuse.com

- ColdFusion 8 Performance WhitePaper
Resources for CF Tuning (cont.)

- Meta-resources (pages pointing to others)
  - http://blog.pixl8.co.uk/index.cfm/2006/12/29/Coldfusion-Tuning-links

- Some specific classic entries
  - http://www.petefreitag.com/articles/gctuning/
Resources for CF Troubleshooting

- “CF911: ColdFusion Tools for When the Stuff Hits the Fan”
  - FAQU, Volume iii Issue ii, coming Spring 2009
- CF411.com
  - my list of 700+ tools, resources
- My CF911 blog entries:
  - http://www.carehart.org/blog/client/index.cfm/troubleshooting
Resources for CF Troubleshooting

- Two 3-hour FusionReactor classes I teach
  - [http://www.fusion-reactor.com/support/training/](http://www.fusion-reactor.com/support/training/)

- My day-long class
  - “CF911: Solving CF Performance and Reliability Problems”
    - Greatly expanded version of this class
    - Offered at CFUnited in 2008
    - Planning to offer it online. Let me know if interested

- Place to ask questions
  - [http://forums.adobe.com/community/coldfusion/coldfusion_administration](http://forums.adobe.com/community/coldfusion/coldfusion_administration)

- My consulting services
  - [http://www.carehart.org/consulting](http://www.carehart.org/consulting)
Conclusion
Summary

- Solving problems with CF often involves digging around to find, enable diagnostics
- Many useful tools, for CF and otherwise
- Many useful logs, more than just “CF logs”
- Saw some resources for learning more
- Hope you feel more empowered to solve problems
  ◦ Or feel free to call on me for assistance
Questions On Presentation

- Charlie Arehart
  - charlie@carehart.org
- I’d really appreciate your feedback
  - http://carehart.org/feedback/
- Available for ColdFusion troubleshooting, setup, implementation consulting
  - Also system admin and tuning support, developer productivity coaching, and more
  - Remote or on-site
  - For as little as days, hours, even 15 minutes
  - http://carehart.org/consulting/