

CF911: Tools and Techniques for Troubleshooting

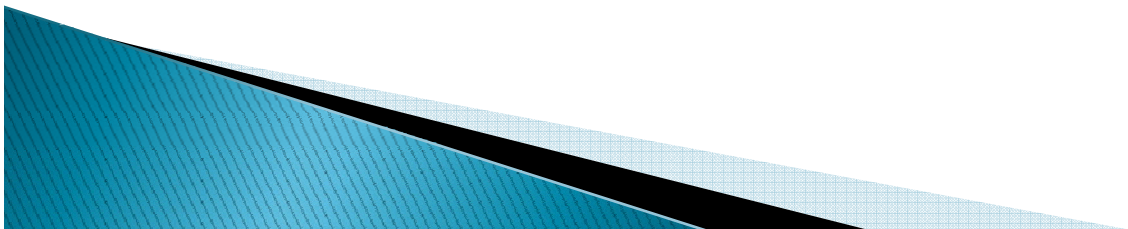


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Topics

- ▶ 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

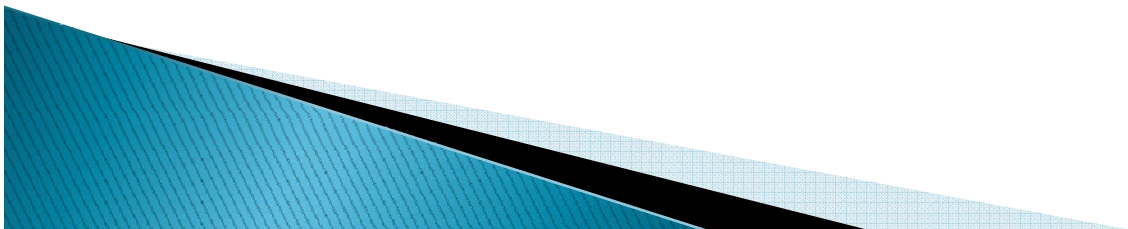
Audience

- ▶ 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

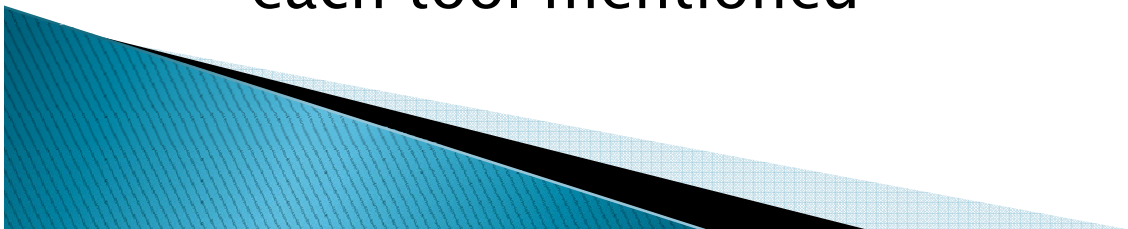
Useful Diagnostics

- ▶ 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

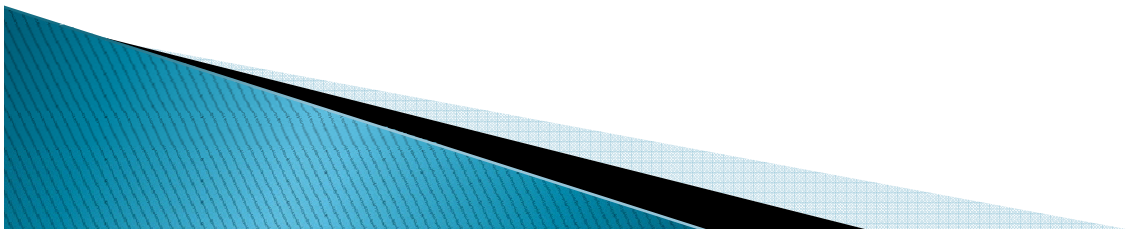
- Provides CFStat measures in Windows PerfMon

▶ 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!

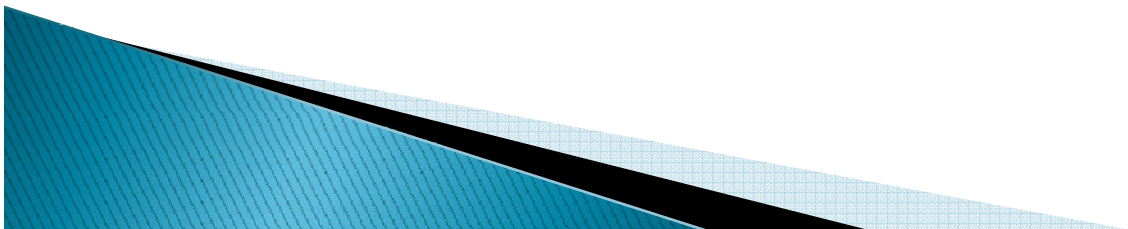
Free CF Troubleshooting Tools (cont.)

- ▶ **GetMetricData CFML function**
 - “perf_monitor” 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

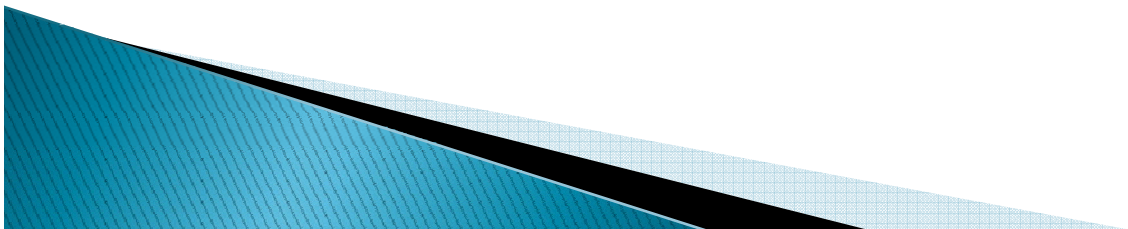


Commercial CF Monitoring Tools

- ▶ 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? ...

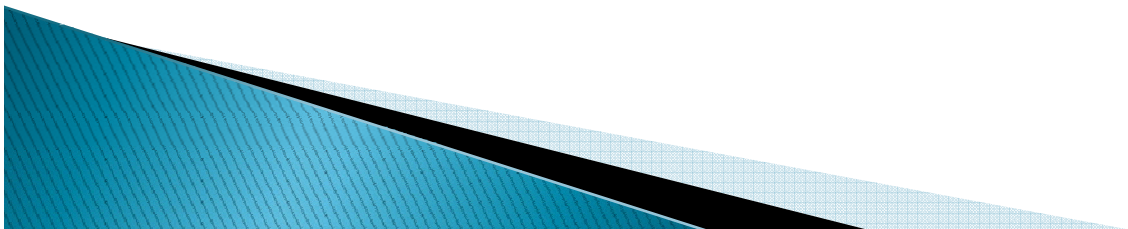
About CF Monitoring Tools

- ▶ 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



About CF Monitoring Tools (cont.)

- ▶ 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>

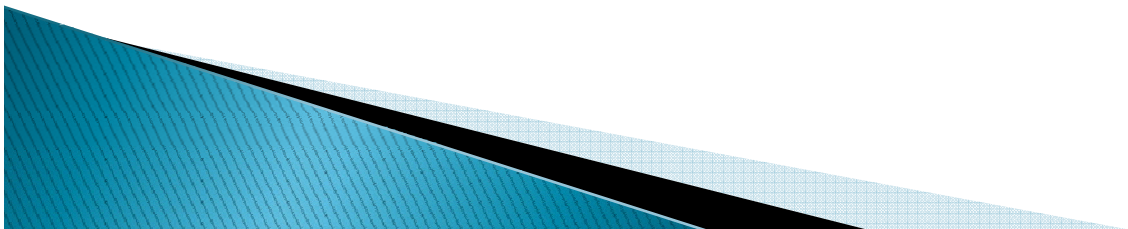
Tools for Troubleshooting Others

Generic Server Monitoring Tools

- ▶ Tools to track how the server and its processes are performing
 - Windows Task Manager
 - Better still, SysInternals ProcessExplorer
 - 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)

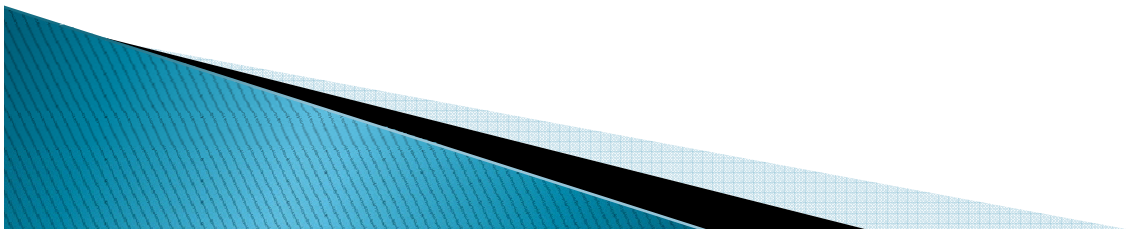


Application Monitoring Tools

- ▶ 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

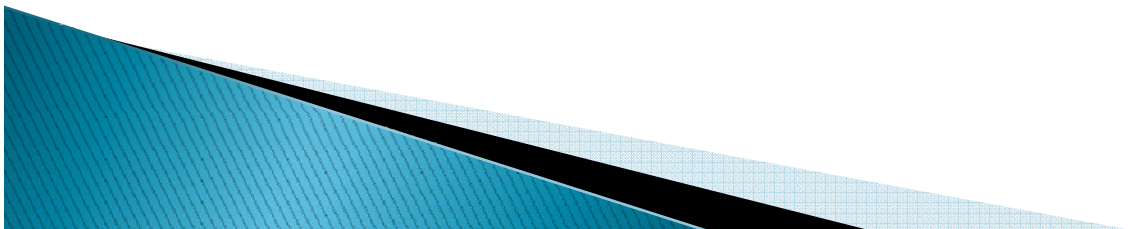
Monitoring HTTP Request/ Response Content, Timing Tools

- ▶ 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
 - http://livedocs.adobe.com/coldfusion/8/webservices_27.html



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

CF Logs

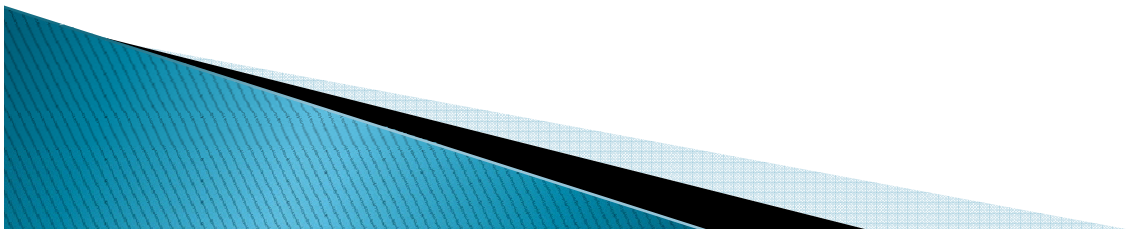
- ▶ May be more than you realize
- ▶ [cf]\logs
 - application.log
 - derby.log (cf8)
 - eventgateway.log (cf7 Ent., 8)
 - exception.log
 - flash.log
 - mail.log
 - mailsent.log (if enabled in Admin)
 - monitor.log (cf8 Ent.)
 - print.log (cf8)
 - scheduler.log (if enabled in Admin)
 - server.log

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.)
 - See <http://blog.daemon.com.au/archives/000277.html> (and others)

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

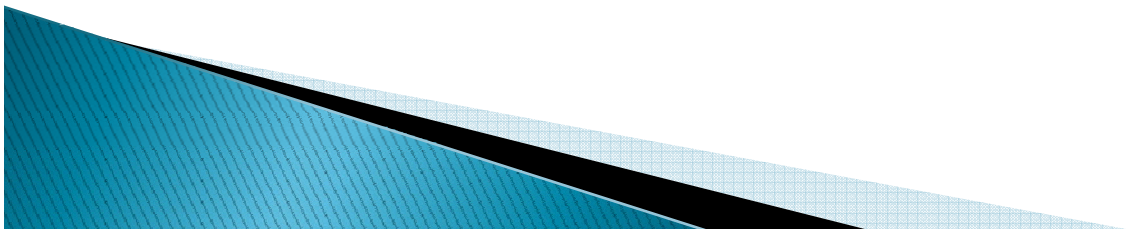


CF Logging Options

- ▶ 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

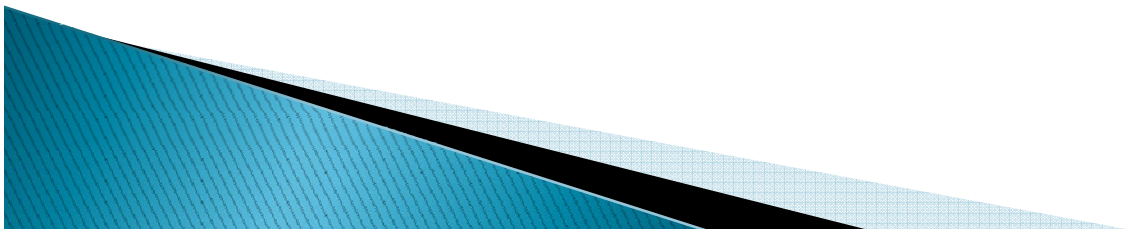
Tools to Read CF Logs

- ▶ 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



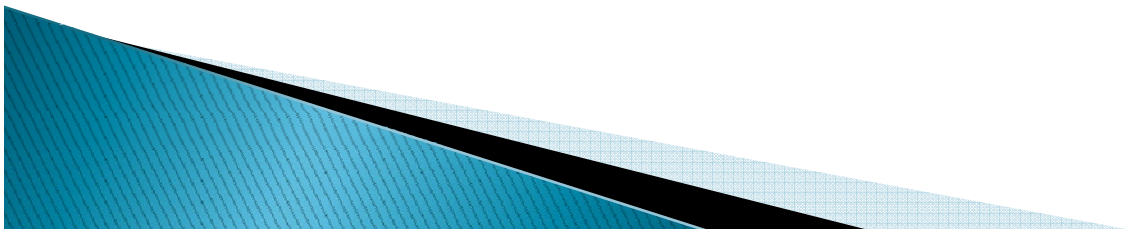
FusionAnalytics

- ▶ 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>



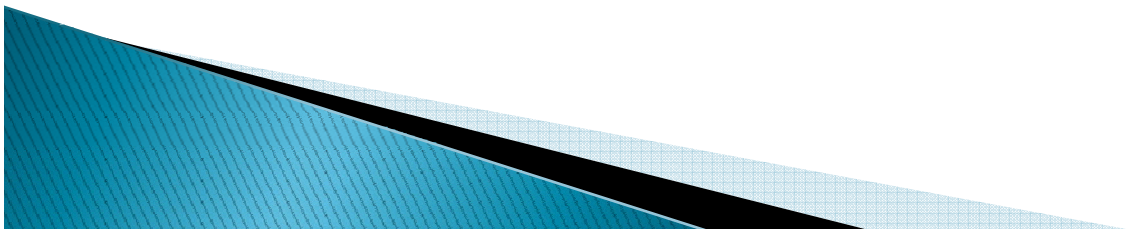
Other Logs

- ▶ 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

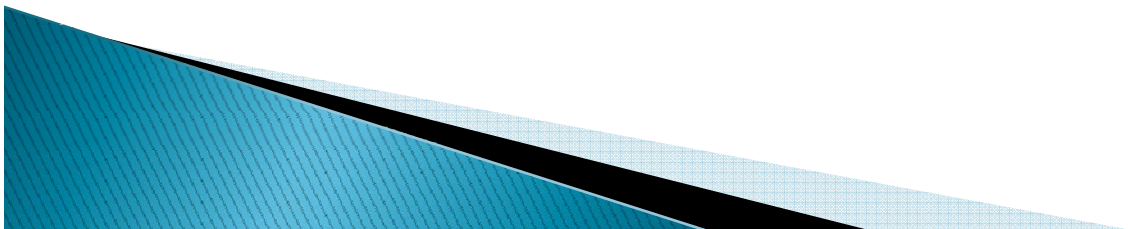
- ▶ **Universal Viewer (ATViewer)**, free
- ▶ **Log Parser**, free, from Microsoft
- ▶ **Sawmill Universal Log File Analysis & Reporting**, commercial
- ▶ And more at cf411.com/#genlog
- ▶ Many web server log analysis tools, of course
 - **Google Analytics**
 - **AWStats**, **Webtrends**, **Analog**, 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/>
 - Robi Sen – via archive.org:
<http://web.archive.org/web/20080127011413/http://www.robisen.com/>
 - Mark Kruger – <http://www.coldfusionmuse.com>
- ▶ ColdFusion 8 Performance WhitePaper
 - http://www.adobe.com/products/coldfusion/pdfs/cf8_performanccebrief.pdf



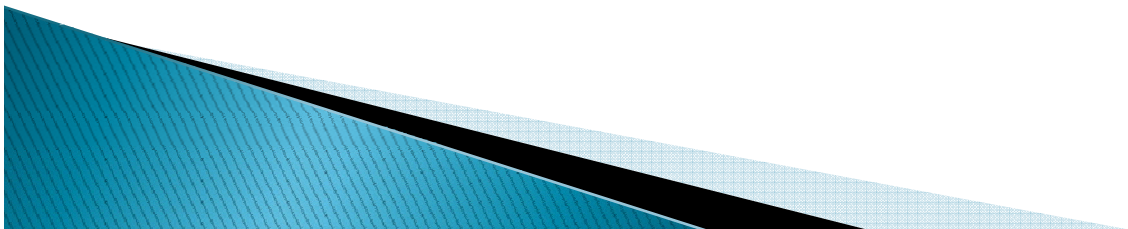
Resources for CF Tuning (cont.)

▶ Meta-resources (pages pointing to others)

- <http://blog.pixl8.co.uk/index.cfm/2006/12/29/Coldfusion-Tuning-links>
- <http://devnullled.com/content/2005/09/coldfusion-mx-tuning-and-clustering-roundup/>
- http://coolskool.blog-city.com/random_collection_of_cfm_performance_tuning_resources.htm

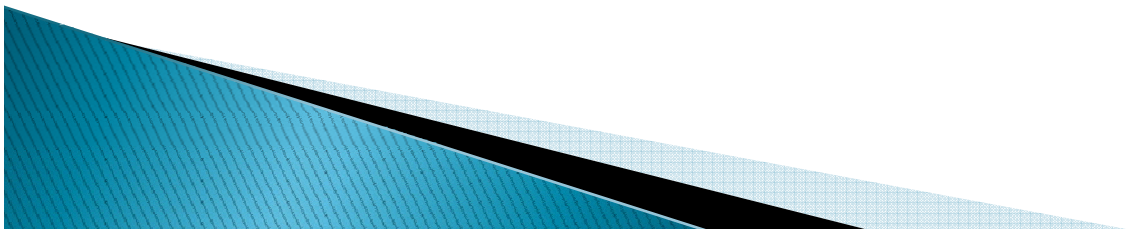
▶ Some specific classic entries

- <http://web.archive.org/web/20080108100935/http://www.robisen.com/index.cfm?mode=entry&entry=FD4BE2FC-55DC-F2B1-FED0717CC1C7E0AF>
- <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>



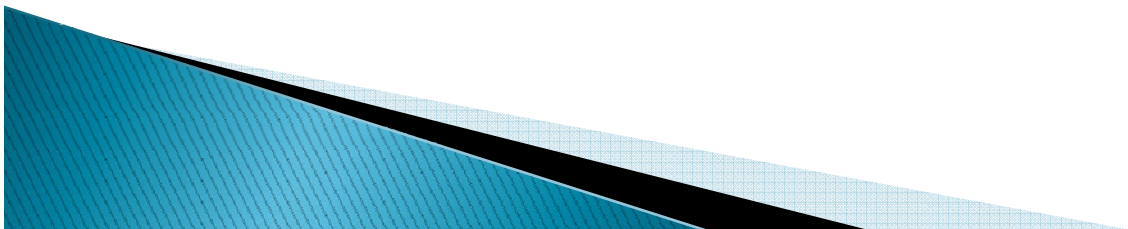
Resources for CF Troubleshooting

- ▶ Two 3-hour FusionReactor classes I teach
 - <http://www.fusion-reactor.com/support/training/>
- ▶ 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
- ▶ My consulting services
 - <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/>