

**March 12th - 13th 2008**  
**Novotel London West, UK**

*cf*united  
**EUROPE**

## Continuous Server Analysis

*Keeping ColdFusion Servers Healthy!*

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March 12 & 13, 2007

# A Day in the Life...

- ◆ How often do you have server problems?
  - Server stops responding?
  - Requests take too long?
  - ColdFusion using too much memory?
  - To name just a few
- ◆ How do you identify, diagnose, and resolve such problems?
  - What resources do you use? Logs? Tools?
- ◆ How often do you watch out for trouble?
  - Do you know of problems before your users?

# Continuous Server Analysis

- ◆ You don't need to wait for the server to crash
  - Creates high stress, has high costs
- ◆ Continuous Server Analysis
  - Methodology of processes, tools
    - to monitor, tune, stabilize, maintain CF servers
  - Server, application, page performance/stability
    - examined on a regular basis
  - Leading to the identification of
    - problem areas, action plans, feedback to dev/support

# Presentation Focus

- ◆ Resources available to Analyze
  - Logs and tools
  - Built into CF and external
- ◆ Some common problems found
- ◆ Simple methodology of monitoring
- ◆ Also, special announcement/demo, near end, of powerful new tool coming soon
  - Even without that tool, resources shared here may bring great new insight

# About Charlie Arehart

- ◆ Independent consultant since April 2006
- ◆ 11 yrs CF experience (26 in Enterprise IT)
  - Member, Adobe Community Experts
  - Certified Adv CF Developer (4 - 7), Cert. Adobe Instructor
  - Writer in CFDJ, FAQU, Adobe DevCenter, more
  - Contributor to all three Ben Forta CF8 books
  - Frequent speaker to user groups, conferences worldwide including CFUnited, cf.Objective, webDU, webManiacs, et al
  - Run the Online ColdFusion Meetup (coldfusionmeetup.com)
  - Living in Alpharetta, Georgia (north of Atlanta)

# About Charlie Arehart

- ◆ Web home at [www.carehart.org](http://www.carehart.org)
  - 200+ blog entries, 60+ articles, 70+ presentations, more
  - UGTV: recordings of preso's by nearly 200 CFUG speakers
  - Resource Lists:
    - Tools/Resources to Consider:
      - Over 400 tools/resources in 40 categories
    - Many other resource lists for CFers
  - Consulting: available for troubleshooting, tuning, training
    - For as few as days, hours, or even minutes; remote or on-site

# Resources for CF Server Monitoring

- ◆ There are many resources
  - Some free, some commercial
  - Some work with CF, some are not specific
- ◆ What are some resources?
  - Logs
  - Tools
  - Other

# Log Analysis



# CF Logs

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

# CF Logs (cont.)

- ◆ [cf]\runtime\logs
  - Or in Multiserver (Multi-instance) mode, [jrun4]\logs
  - -event, -err, -out logs
- ◆ Note
  - 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) for how to edit [cf]\runtime\servers\coldfusion\SERVER-INF\jrun.xml

# CF8 Logging Options

- ◆ 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

# CF8 Logging Options (cont.)

- ◆ Interesting option for Derby Datasources:
  - CF Admin Datasource setting> “Advanced Settings”>“Connection String”
    - derby.language.logQueryPlan=true
    - Writes to [cf]\logs\derby.log

# Other Logs

- ◆ Web Server Logs
- ◆ Windows Event Viewer
- ◆ FusionReactor logs (more later)

# Free Generic Logging Tools

- ◆ Universal Viewer (ATViewer)
  - <http://www.uvviewsoft.com/>
- ◆ Log Parser (free, from Microsoft)
  - <http://www.logparser.com>
- ◆ BareTail, to view logs as they're added to, live
  - <http://www.baremetalsoft.com/baretail/>
- ◆ Sawmill Universal Log File Analysis & Reporting (not free)
  - <http://www.sawmill.net/>
- ◆ Many web server log analysis tools
  - Google Analytics
  - AWStats ([awstats.sourceforge.net](http://awstats.sourceforge.net)), etc.

# Monitoring Tools

# Free CF-specific Monitoring Tools

- ◆ CFStat

- Command line tool, found in [cf]\bin\
  - New -x argument in CF8

- ◆ CF Performance Monitor stats

- Windows tool, but with CF-specific info

- ◆ Note:

- Previous two be enabled in CF Admin (debugging page)

- ◆ GetMetricData("perf\_monitor")



# Free CF-specific Monitoring Tools (cont.)

## ◆ JRun metrics

- Can be enabled on any CF edition (6-8) to add a line at regular intervals to track current state
- More at:
  - <http://tutorial351.easycfm.com/>
  - [http://www.adobe.com/go/tn\\_19120](http://www.adobe.com/go/tn_19120)
  - <http://www.bpurcell.org/blog/index.cfm?mode=entry&entry=991>

## ◆ System Probes (in Enterprise)

- CFAdmin Debugging&Logging>System Probes

# Free CF-specific Monitoring Tools (cont.)

- ◆ CF8 Server Monitor (CF8 Enterprise, Developer editions)
  - See my 4-part article series in the Adobe Dev Center, starting at:
    - [http://www.adobe.com/devnet/coldfusion/articles/monitoring\\_pt1.html](http://www.adobe.com/devnet/coldfusion/articles/monitoring_pt1.html)
  - Only available with CF8 Enterprise
    - Can only monitor CF8 Enterprise servers

# Commercial CF-specific Monitoring Tools

- ◆ FusionReactor

- <http://www.fusion-reactor.com>

- ◆ SeeFusion

- <http://www.seefusion.com>

- ◆ These both work with CF 6, 7, and 8

- Both have free trials

# About CF-specific 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 queries executed in request
  - See “stack trace” to view line of code being executed
- ◆ CF8 monitor can view all sessions, applications, and more
- ◆ FR 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

# Generic Server Monitoring Tools

- ◆ Windows Task Manager
- ◆ SysInternals ProcessExplorer
  - Powerful replacement for Task Manager
  - <http://technet.microsoft.com/en-us/sysinternals/bb896653.aspx>
- ◆ Windows Performance Monitor
- ◆ SysInternals Process Monitor
  - Combines former Filemon, Regmon tools
  - <http://technet.microsoft.com/en-us/sysinternals/bb896645.aspx>

# Database Monitoring Tools

- ◆ Consider tools available for databases
  - Free
    - SQL Server Profiler/Trace
    - Spotlight on MySQL
      - <http://www.quest.com/spotlight-on-mysql/>
  - Commercial
    - Spotlight on SQL Server (others for DB2, Oracle, etc.)
      - <http://www.quest.com/database-management/>
    - MonYog (for MySQL)
      - <http://webyog.com/en/>
  - Others exist as well, of course

# Problem Analysis

# Some Common Problems

- ◆ CF stops responding (but now down)
  - Use monitoring tools to see what requests are running
- ◆ CF runs out of memory
  - Use monitoring tools to view use within server
- ◆ Requests taking too long
  - Use monitoring tools to view details of request
  - Optionally view “stack trace”
  - Optionally terminate requests



# Some Common Problems (cont.)

- ◆ Client variable purge process
  - CF will purge registry, databases every 67 mins by default
  - Could take a long time if repositories have become huge
    - Could be caused by spiders
    - [http://carehart.org/blog/client/index.cfm/2006/10/4/bots\\_and\\_spiders\\_and\\_poor\\_CF\\_performance](http://carehart.org/blog/client/index.cfm/2006/10/4/bots_and_spiders_and_poor_CF_performance)
- ◆ “Timeout Requests after x seconds” may not timeout all long-running requests
  - In CF Admin>Server Settings>Settings
  - Does not stop requests while talking to resources outside of CF:
    - CFQUERY, CFHTTP, web services, etc.

# Some Common Problems (cont.)

- ◆ File Upload issues before CF8
  - Prior to CF8, files upload to CF were held in memory—and NOT released after request
  - Hotfix for 7.02 available (not in CHF)
    - <http://www.adobe.com/go/kb401239>
- ◆ To name just a few ...

# 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 - <http://www.robisen.com/>
- ◆ ColdFusion 8 Performance WhitePaper
  - [http://www.adobe.com/products/coldfusion/pdfs/cf8\\_performancebrief.pdf](http://www.adobe.com/products/coldfusion/pdfs/cf8_performancebrief.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://devnulled.com/content/2005/09/coldfusion-mx-tuning-and-clustering-roundup/>
- [http://coolskool.blog-city.com/random\\_collection\\_of\\_cfm\\_x\\_performance\\_tuning\\_resources.htm](http://coolskool.blog-city.com/random_collection_of_cfm_x_performance_tuning_resources.htm)

- ◆ Some specific classic entries

- <http://www.robisen.com/index.cfm?mode=entry&entry=FD4BE2FC-55DC-F2B1-FED0717CC1C7E0AF>
- <http://www.petefreitag.com/articles/gctuning/>

# Resources for CF Troubleshooting

- ◆ 3-hour FusionReactor classes
  - <http://www.fusion-reactor.com/services/traininginformation.cfm>
- ◆ My day-long class at CFUnited
  - CF911: Solving CF Performance and Reliability Problems
    - <http://teratech.com/go/training/class-schedule?trainingaction=detail&TID=332>

# What this talk has not covered

- ◆ CF Admin tuning settings
  - Simultaneous requests
  - Request throttling, size limits (new in 7)
  - Template cache control, Trusted Cache
  - Save Class Files
  - Cache web server paths
  - Query cache control
  - Client Variable mgt (default storage, “Disable global client variable updates”, purge interval)
  - Session/Application variable default timeouts
  - Java and VM tuning
  - Datasource config tuning
  - Disabling debugging (in prod)

# What this talk has not covered

- ◆ Client-side proxy/request monitoring tools
  - Fiddler (free)
    - <http://www.fiddlertool.com>
  - Firebug (free)
    - <http://www.getfirebug.com/>
  - Yslow (free)
    - <http://developer.yahoo.com/yslow/>
  - Many others listed at [http://www.carehart.org/resourcelists/tools\\_to\\_consider/index.cfm](http://www.carehart.org/resourcelists/tools_to_consider/index.cfm)

# Monitoring Methodology



# A Simple Monitoring Methodology

- ◆ Interactive
- ◆ Daily
- ◆ Weekly
- ◆ Monthly
- ◆ Quarterly
- ◆ Yearly

# So Where Does that Leave Us?

- ◆ So the logs and tools are there
  - And it's a fair bit of work to watch it all manually
- ◆ What if you had a tool to help do it all for you?
  - ...

# FusionAnalytics

# 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
- ◆ Let's see a demo

# FusionAnalytics

- ◆ Some other features
  - Can add your own logs to analyze
  - Can add your own indicators of “annotations”
  - Can build your own queries to analyze data
- ◆ The tool is only in Alpha now
  - Improving dramatically by the day!
  - Contact [sales@fusion-reactor.com](mailto:sales@fusion-reactor.com)

# Summary

- ◆ There are many logs available to help
  - Some in CF, some outside of it
  - Some are optional, or can be configured
- ◆ There are tools to help view logs
- ◆ There are tools to monitor CF interactively
- ◆ We need to monitor these things continuously
  - Could follow a methodology of regular analysis
- ◆ FusionAnalytics will really help with this task

# Questions On Presentation

- ◆ Charlie Arehart
  - [charlie@carehart.org](mailto:charlie@carehart.org)
- ◆ I'd really appreciate your feedback
  - <http://carehart.org/feedback/>
- ◆ Also available for troubleshooting, training, consulting
  - Also other developer productivity coaching, system admin and tuning support, and more
  - For as few as days, hours, or even minutes; remote or on-site