Keep Applications Online
And Detect & Isolate
Application Issues & Performance Bottlenecks In No Time

With FusionReactor 6

Charlie Arehart, Independent Consultant
CF Server Troubleshooter
CArehart.org
charlie@carehart.org
@carehart (Tw, Fb, Li)
What we’ll cover

• Key new features of FusionReactor 6
  • Low overhead Profiler
  • Production Debugger

• Additional FR 6 improvements

• Some FR 6 hidden gems

• Quick overview of FR’s long-standing benefits

• Sneak peek at FusionCLOUD (coming soon)
Who does this talk apply to?

- Anyone interested in troubleshooting/tuning servers; solving coding issues
  - Admins, managers, developers, devops
- Whether using any CFML engine
  - ColdFusion, Lucee, Railo, BlueDragon
- Or any Java application or server
  - Tomcat, JBoss, Wildfly, Jetty, WebSphere etc.
  - Or java applications: Solr, Confluence, etc.
- FusionReactor is implemented simply as a javaagent
- And is a low-cost, low-impact, reliable tool
  - Trusted for over 10 years by thousands of companies (over 30K servers world-wide)
Key new features in FR 6

- Low overhead Profiler (in Ultimate edition)
  - Lets you see where the most time is spent within a request
  - Can change profiler default triggering at > 3 seconds; change poll interval (200 ms)
    - FusionReactor>plugins>active plugins>FusionReactor Low Cost Profiler
- More:
  - www.fusion-reactor.com/production-java-profiler/
  - www.fusion-reactor.com/evangelism/introducing-fusionreactors-production-java-profiler/
  - docs.intergral.com/display/FR62/Profiler

- ...
Key new features in FR 6 (cont.)

• Production Debugger (Ultimate)
  • Lets you interactively step through code, view and change variables
  • All without bother of setting up an IDE
    • And yet totally safe for even PRODUCTION use! (Patented)
  • Includes options to trigger emails (with details), break on exceptions, conditions, and more
• More:
  • fusion-reactor.com/production-debugger
  • Videos: fusion-reactor.com/videotuts/?filter=prodDebug
  • docs.intergral.com/display/FR62/Debug+Examples
Additional FR 6 improvements

• System Resources (in Enterprise, Ultimate editions)
  • Via System Resources option on left
  • Track system CPU, memory usage, network traffic and disk I/O
  • Track all running processes in OS
• Rest of items available in either FR Standard, Enterprise, or Ultimate
• ...

Additional FR 6 improvements (cont.)

• CF Metrics and CF System Metrics  
  • Track CF metrics like db pool stats, template cache size, query cache size, more  
  • Some values shown only if CF Enterprise Svr Mon features enabled  
  • Via Metrics option on left

• Memory use now tracked PER request, query, transaction  
  • Viewable in request/query/trx details, and new Requests>Req. by Mem  
  • Do beware, is total mem used over life of request (not peak at any one time)  
  • More: fusion-reactor.com/evangelism/Transaction-Memory-Values-Explained

• ...
Additional FR 6 improvements (cont.)

- New Requests>Applications page, to view more breakdown by app
- Improved Relations tab (on request details)
  - Breaks down kinds of operations within a request (that FR monitors queries, httpclient, etc.)
  - And new Aggregates tab, to more simply aggregate that info
- Can view aggregate totals of CFHTTP/httpclient URLs across ALL requests: Transactions>External Resources
- ...
Additional FR 6 improvements (cont.)

- Sessions now tracked in User>Sessions
  - Was previously hidden in Metrics>Custom Series
  - Now includes tracking of session creation, removal, option to view per application
  - Can show sessions per application. See bottom of page
    - Can control with User>Settings>Sessions

- Changes to style of FR CP email alerts
  - Html formatted, tabular layout
  - “Query running” info, request thread id now offered with list of request details at top
Additional FR 6 improvements (cont.)

• New weekly, monthly reports (in Enterprise, Ultimate editions)
  • Tracking counts of requests, queries, their durations, 404s, sessions, etc
  • Daily report available in FR Standard, since FR 5
    • FR6 offers extended daily report in Enterprise/Ultimate
• More:
  • fusion-reactor.com/daily-report-email/
  • fusion-reactor.com/evangelism/FusionReactor-Daily-Reports
**Additional FR 6 improvements (cont.)**

- New option to track CFML line execution times
  - Provided as option for CF as of FR 6.0.4, and Lucee/Railo as of FR 6.2
  - AKA “line performance profiler”, tracks execution/duration of every line
  - *Can have high performance impact, so disabled by default*
    - Enabled via *FusionReactor>*Plugins>*Active Plugins*
    - Impact is during enabling, using, then also disabling the feature

- Available tool to view its saved result
  - [github.com/intergral/cfperformanceexplorer](https://github.com/intergral/cfperformanceexplorer)
  - Can be used as a code coverage tool
    - [docs.intergral.com/display/FR62/FusionReactor+ColdFusion+Line+Performance+Profiler](https://docs.intergral.com/display/FR62/FusionReactor+ColdFusion+Line+Performance+Profiler)
    - [docs.intergral.com/display/FR62/FusionReactor+Lucee+and+Railo+Plugin](https://docs.intergral.com/display/FR62/FusionReactor+Lucee+and+Railo+Plugin)
Some FR 6 hidden gems

• Can now export FR logs from archives in UI (by default in FR6)
  • See Logging>Log Archive

• New tail feature in FR UI log viewer (for current hour logs)
  • See FusionReactor>Logs, then “Tail” button in top right of UI

• Option to obfuscate SQL in UI (hides customer data w/in the sql)
  • JDBC>settings>transaction settings>obfuscate sql data

• Option to generate JDBC SQL Explain Information on very slow queries
  • JDBC>settings>query plan settings

• Improved support for Java Frameworks – Spring, Struts
• And lots more…
FR 6 hidden gems (cont.)

• Much more on hidden gems in FR6, in new webinar
  • And another: Hidden Gems in FR (for those in FR 6 or earlier)
  • Still other coming additional ones (tentative titles)
    • Troubleshooting with FR
    • Advanced FR use
    • Foundations of FusionReactor

• Indeed, before concluding, I want to highlight such fundamentals briefly...
Quick overview of Fusionreactor’s long-standing benefits

• FR lets you do so much more than these “new” things discussed today
• Primary task: monitoring your CFML or Java app server
  • Tracking every request, and details about each
  • And every query, and details about each
  • Also offers info on heap use, cpu, and much, much more
• And many folks focus on slow requests/queries, high cpu/memory
  • FR helps easily see when and where such problems happen
• But folks are often left wondering why
  • Good news: the answers are usually there, with just a little effort...
Quick overview of Fusionreactor’s long-standing benefits (cont.)

• Fundamental (now new) features which everyone using FR should know
  • Covered in Fast Track training, FR docs, FR site feature pages, and so on
  • Stack tracing
    • to identify line of code, while request is currently running
  • FR CP alerts
    • to show tremendously useful info by email at time of hangup
    • and the possibility of protecting against some crashes
• Logs
  • To track nearly all FR data over time
  • Self-managed to not take up space, and high-speed, so little impact
• End-user performance monitoring (time spent getting to/from client)
Quick overview of Fusionreactor’s long-standing benefits (cont.)

• All this is done with very little overhead
• And available via mobile devices (in FR Enterprise)
Next steps

• Check out free 14-day trial (latest version is 6.2.3)

• Inexpensive licensing, by monthly subscription or perpetual purchase
  • 3 editions: **Standard** starts at $39/month, **Enterprise** 59/mo, **Ultimate** 79/mo
  • Newly available Developer edition: $199 – Optional annual maintenance just $99

• More at fusion-reactor.com
  • Docs, videos, technotes, blog, google group, and more

• Or come by the booth here to meet the FR folks
  • Including Darren Pywell (CTO), David Tattersall (Managing Director)
  • Who I would like to introduce now to discuss a new addition to the Fusion Family – FusionCLOUD
FusionCLOUD Features....

- CLOUD Dashboard – very configurable, thresholds, grouping servers
- Bi-directional secure channel (SOCKET) – Ability to send requests down to your server e.g. Stack Trace / Garbage Collection / Execute script
- Application view – generated from individual or clustered servers
- Application broken down by %Time taken, Average, Slowest, Throughput, #Errors
- Automatic identification of ”interesting transactions“
- Ability to SAVE requests, transactions, stack traces, JDBC
- Server Metrics, Transactions, Requests, JDBC
- Alerting Engine for email, PageDuty, HipChat, Email, Slack, OpsGenie , VictorOps, FLOWDOCK, Twilio, IRCCAT etc.
FusionCLOUD Facts

- Hybrid Solution – FusionReactor on-premise + FusionCLOUD (optional)
- Infrastructure runs on AWS
- Beta has been running for around 12 months – now migrating beta users „soft rollout“
- Licensing Model
  - CLOUD – Server Reservations combined with On-demand (similar to AWS)
- Editions available –
  - Enterprise – Multi-Server, Advanced Reporting, Mobile Client, Enterprise Scripting
  - Ultimate – Production Debugger, Production Profiler, Production Memory Analyzer (TBA)
- Pricing
  - Enterprise - $99 month / $990 year
  - Ultimate - $149 month / $1490 year