Monitoring Java Applications using Thermostat

Let's find out what your application is really doing

Omair Majid
omajid@redhat.com
Senior Software Engineer @ Red Hat
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Agenda

- Performance
- Thermostat
- Plugins
- New Features
- Next Steps
What Matters To You?
Performance - Host

What information do I care about?

- OS
- CPU
- Memory
- IO
Performance - JVM

What JVM information do I care about?

- CPU Usage
- Memory
- Garbage Collection
- Classes
- JIT behaviour
- IO Calls
- Threads
Performance – Modify the JVM

What JVM information do I care about?

- Heap Dumps
- Invoke Garbage Collector
- Detect Deadlocks
- Inject custom code for on-demand instrumentation
Too Many Things
Thermostat

- Serviceability and Monitoring for OpenJDK
Thermostat

- Single Machine
- Multiple Hosts/JVMs
Thermostat

- Up and down the stack
Thermostat

- Historical Information
Thermostat

- Command Line & GUI
Thermostat

- Open Source
- Same license as OpenJDK
Usage

$ thermostat local

$ thermostat web-storage-service

$ thermostat shell
Demo
Plugins
Plugins

- Customize Agent and/or Client
  - Collect, Record, Analyze your own metrics
  - Integrate your own tools
- Most built in functionality is actually plugins
- Documented API
New Features
New Features

- Byteman UI

- “Monitoring Application-Specific Behavior Using Thermostat And Byteman”
- https://youtu.be/teL7qnuIUTM
New Features

- Stack Trace Profiler
New Features

- Shenandoah
New Features

- Automatically Identifying (Some) Problems
New Features

- Windows port in progress
Next Steps
Release History

Initial Release
May 2012

Version 1.0
November 2013

Version 1.2
December 2014

Version 1.4
November 2015

Version 1.6
July 2016
Development

- Adhering to standard API versioning
- API breaking changes → Thermostat 2.0 / NG
- Non-breaking changes/bugfixes → Thermostat 1.6
Future Tasks

● Integration with more tools
● More automated learning/detection
Cloud/Microservices
Try It!

Red Hat Enterprise Linux 6 and 7
- Red Hat Software Collections
  - `yum install thermostat16-thermostat`
Fedora 21+
- `yum install thermostat`

Sources
Contributing

Starting point: http://icedtea.classpath.org/thermostat

- Mailing lists
- IRC
- Bug tracker

- Features
- Report Bugs
- Code
Summary

● Why Thermostat
● Thermostat: What & How
● Plugins
● New Features
● Next Steps

http://icedtea.classpath.org/thermostat/
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