PCP at HUOBI

The Flame Graph Chronicles

Background

- I am tall (people tell me it is important)
- I do System Administration/DevOps(I swear it is not a cult)
- Working at Huobi, a world class global digital asset exchange
- Thanks for having me

Summary

- We had a poorly behaving application
- Normal JMX tools were too invasive/expensive
- Needed to get Developers a picture of what was going on
- Flame graphs to the rescue
- Flame graphs are the tail t hat wagged the PCP dog

Problem

- A trading application was pausing do to GC and code issues

- JMX monitoring was too invasive
  - We could only run the tool on one of several instances
  - It slowed things down
  - It made things more likely to crash
  - Problems happened on the unmonitored instances

- I am not familiar with Java and its ecosystem

Solution

- Flame graphs to the rescue
  - http://brendangregg.com/flamegraphs.html
- Brendan D. Gregg you rock, thanks for sharing
- Go read all his posts/books and watch on youtube

CPU Flame Graph (no idle): docker-1a-37.aws-jp1.huobiidc.com, 2018-04-28_03:21:20

What are flame graphs?

- They are a way of visualizing what is happening on the system during a given window

- You summarize the details visually to see one type of problem

- Different graphs for different problems

Performance CoPilot and Vector

- Right now it is a way for me to get to flame graphs
- Some uses of real time system stats: memory, cpu etc
- Future there is a lot of value there to be used.
- It is full of fun toys to play with
- Nice friendly community

What do we use it for?

- Getting pictures to developers to see the problem
- We don't use it enough
- We have not deployed it everywhere yet

My local pain points

- I do not speak Chinese
  - Critical failure on my part
- I do not speak java
- Servers are pets
- Issues getting capacity from Amazon for upgrading servers
- We need to switch over

Product Improvements

- Tag JVM's with Docker Container ID/name
- Java 9+ , tools.jar went away
  - Will impact making flame graphs with Java apps

Final Thoughts

- Performance Co-Pilot is nice
- Vector/Flame graphs and system stats are very handy
- It is interesting and fun to play/work with

Thanks
and
Any questions?