

Kata Containers metrics report

Auto generated

22 March, 2019

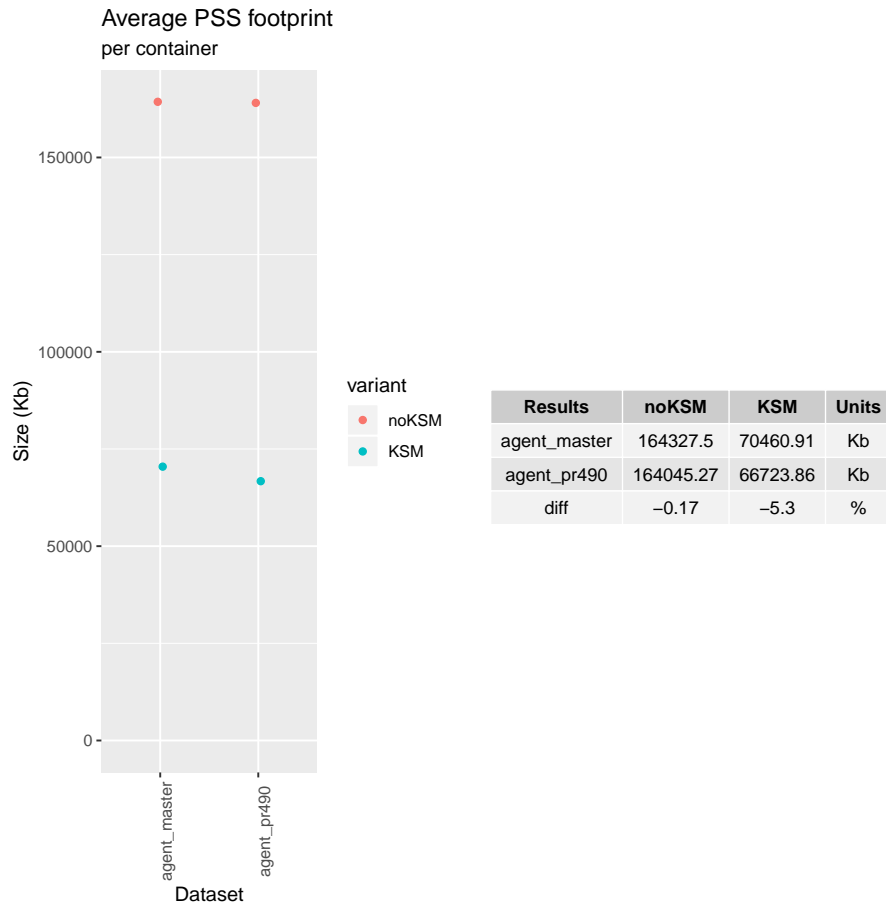
Introduction

This report compares the metrics between multiple sets of data generated from the [Kata Containers report generation scripts](#).

This report was generated using the data from the `agent_master/`, `agent_pr490/` results directories.

Container PSS footprint

This [test](#) measures the PSS footprint of all the container runtime components whilst running a number of parallel containers. The results are the mean footprint proportion for a single container.

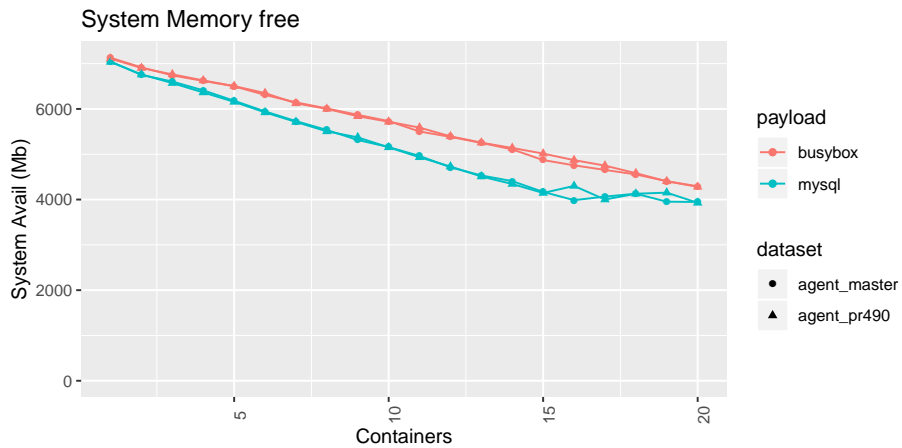


Container scaling system footprint

This [test](#) measures the system memory footprint impact whilst running an increasing number of containers. For this test, [KSM](#) is enabled. The results show how system memory is consumed for different sized containers, and their average system memory footprint cost and density (how many containers you can fit per Gb) is calculated.

```
## Warning in eval(ei, envir): Skipping non-existent file: /inputdir/  
## agent_master/footprint-elasticsearch-ksm.json
```

```
## Warning in eval(ei, envir): Skipping non-existent file: /inputdir/  
## agent_pr490/footprint-elasticsearch-ksm.json
```

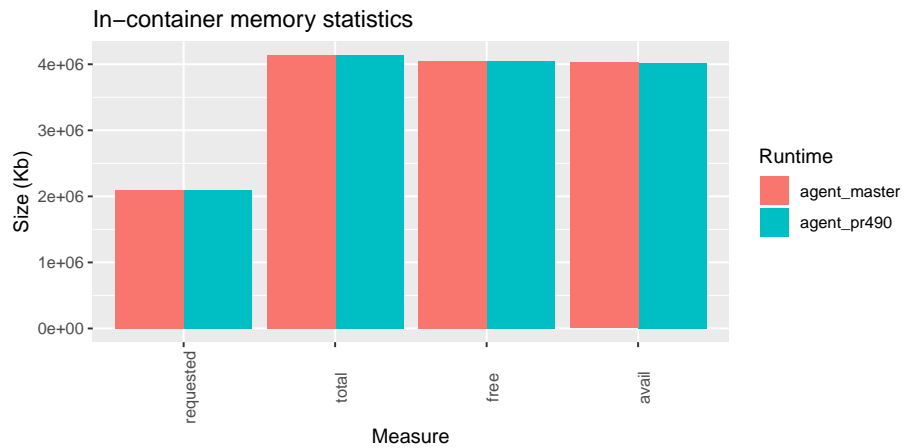


Test	n	Tot_Kb	avg_Kb	n_per_Gb
agent_master busybox	20	3122308	156115.4	6.7
agent_master mysql	20	3471736	173586.8	6
agent_pr490 busybox	20	3136340	156817	6.7
agent_pr490 mysql	20	3478864	173943.2	6

Memory used inside container

This [test](#) measures the memory inside a container taken by the container runtime. It shows the difference between the amount of memory requested for the container, and the amount the container can actually 'see'.

The *% Consumed* is the key row in the table, which compares the *Requested* against *Total* values.

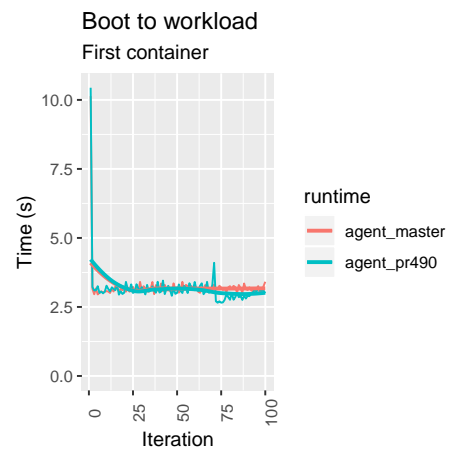


	agent_master	agent_pr490	Units	Diff %
<i>Requested</i>	2097152	2097152	Kb	0
<i>Total</i>	4138848	4138848	Kb	0
<i>Free</i>	4048344	4048108	Kb	-0.01
<i>Avail</i>	4026324	4026152	Kb	0
<i>Consumed</i>	-2041696	-2041696	Kb	0
<i>% Consumed</i>	-97.36	-97.36	%	

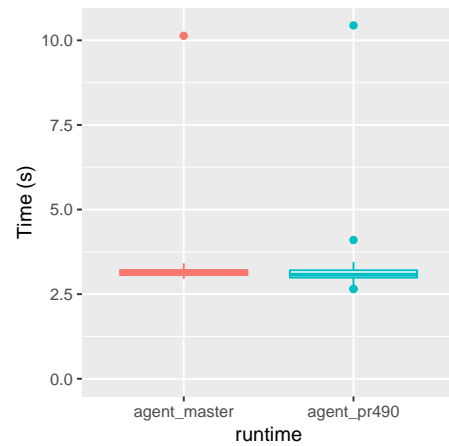
Container Docker boot lifecycle times

This [test](#) uses the `date` command on the host and in the container, as well as data from the container kernel `dmesg`, to ascertain how long different phases of the create/boot/run/delete Docker container lifecycle take for the first launched container.

To decode the stats table, the prefixes are 'to(2)' and 'in'. The suffixes are 'kernel', 'workload' and 'quit'. 'tot' is the total time for a complete container start-to-finished cycle.



Results	2k	ik	2w	2q	tot
agent_master	2.72	0.5	3.22	2.96	6.18
agent_pr490	2.66	0.5	3.16	2.98	6.13
Units	s	s	s	s	s
Diff	-2.21 %	0 %	-1.86 %	0.68 %	-0.81 %



Storage I/O

Measure storage I/O bandwidth, latency and IOPS using this [test](#).

This test measures using separate random read and write tests.

Reads

```
## Error in `colnames<-`(`*tmp*`, value = `*vtmp*`): attempt to set 'colnames' on an object
```

Writes

```
## Error in `colnames<-`(`*tmp*`, value = `*vtmp*`): attempt to set 'colnames' on an object
```


Network CPU costs

Measure CPU costs whilst performing a fixed bandwidth container to container network test using this [test](#). As local container-to-container networking is a pure local software activity, this test is a reasonable way to show changes in network stack processing costs.

```
## Warning in eval(ei, envir): Skipping non-existent file: /inputdir/  
## agent_master/cpu-information.json
```

```
## Warning in eval(ei, envir): Skipping non-existent file: /inputdir/  
## agent_pr490/cpu-information.json
```

```
## Error in rstats[n, 2]: subscript out of bounds
```

Test setup details

This table describes the test system details, as derived from the information contained in the test results files.

What	agent_master	agent_pr490
Run Ver	1.6.0-rc2	1.6.0-rc2
Run SHA	a7ccc24c808b391fb93d1841ee354d7f682144e1	a7ccc24c808b391fb93d1841ee354d7f682144e1
Proxy Ver	1.6.0-rc2-d4aa0b2ab6b35b080f7528e8fcd38e667a3fb6	1.6.0-rc2-d4aa0b2ab6b35b080f7528e8fcd38e667a3fb6
Shim Ver	1.6.0-rc2-b88e08dd224ff97767b2a5f94d2f8dca798b7365	1.6.0-rc2-b88e08dd224ff97767b2a5f94d2f8dca798b7365
Hyper Ver	2.11.0	2.11.0
Image Ver	28430-osbuilder-a06c82a-agent-02cacde.img	28430-osbuilder-a06c82a-agent-37a4945.img
Guest Krnl	4.19.28-31	4.19.28-31
Host arch	amd64	amd64
Host Distro	Ubuntu	Ubuntu
Host DistVer	18.04	18.04
Host Model	Intel(R) Xeon(R) CPU E5-2673 v4 @ 2.30GHz	Intel(R) Xeon(R) CPU E5-2673 v4 @ 2.30GHz
Host Krnl	4.18.0-1013-azure	4.18.0-1013-azure
runtime	kata-runtime	kata-runtime

Figure 1: System configuration details