Kata Containers metrics report

Auto generated

15 April, 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 **run1/, run2/** 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.

```
## Warning in eval(ei, envir): Skipping non-existent file: /inputdir/run1/
## memory-footprint.json
```

```
## Warning in eval(ei, envir): Skipping non-existent file: /inputdir/run1/
## memory-footprint-ksm.json
```

```
## Error in rbind(rstats_names, datasetname): object 'datasetname' not found
```

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.

```
## Error in `colnames<-`(`*tmp*`, value = c("Test", "n", "Tot_Kb", "avg_Kb", : attempt to se
```

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.

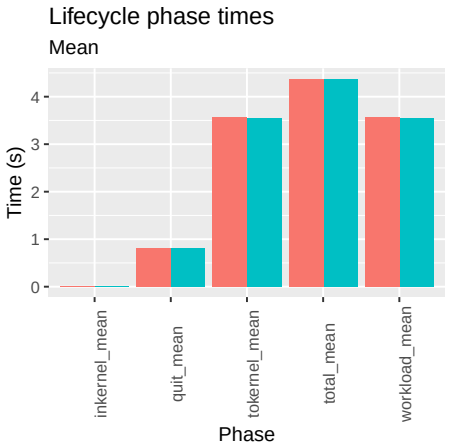
```
## Warning in eval(ei, envir): Skipping non-existent file: /inputdir/run1/
## memory-footprint-inside-container.json
```

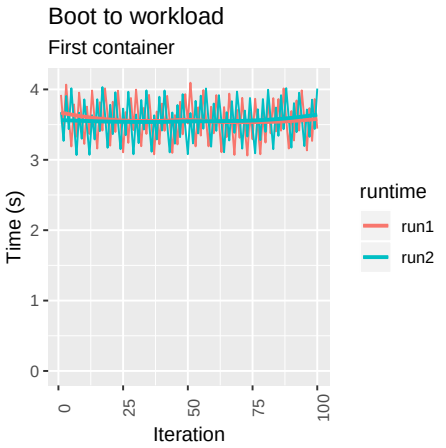
```
## Error in append(rstats_cols, datasetname): object 'datasetname' not found
```

Container Docker boot lifecycle times

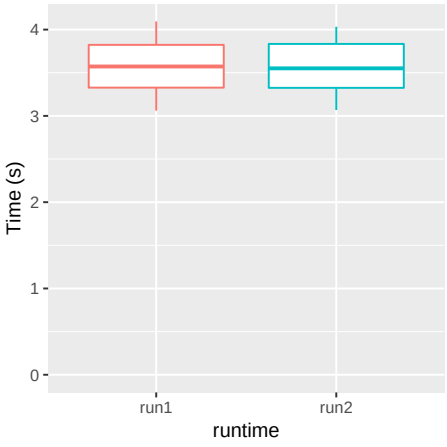
This test uses the `date` command on the host and in the container, as well as data from the container kernel `dmesg`, to ascertain how long different phases of the create/boot/run/delete Docker container lifecycle take for the first launched container.

To decode the stats table, the prefixes are 'to(2)' and '`in`'. The suffixes are '`k`ernel', '`w`orkload' and '`q`uit'. 'tot' is the total time for a complete container start-to-finished cycle.





Results	2k	ik	2w	2q	tot
run1	3.56	0	3.56	0.81	4.38
run2	3.56	0	3.56	0.82	4.38
Units	s	s	s	s	s
Diff	0 %	NaN %	0 %	1.23 %	0 %



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/run1/cpu-
## information.json
```

```
## Warning in eval(ei, envir): Skipping non-existent file: /inputdir/run2/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	run1	run2
Run Ver	1.7.0−alpha0	1.7.0−alpha0
Run SHA	2b45f0b2fd7effa94b3afaf5c9f33cefbab23c4b	30e038abfb64cb35fb57fe3e74524de5a9270ecf
Proxy Ver		
Shim Ver	1.6.1−39896627000d0305490e26440880a68f766ce45c	1.6.1−39896627000d0305490e26440880a68f766ce45c
Hyper Ver	3.0.92	3.0.92
Image Ver		
Guest Krnl	140/usr/share/kata−containers/vmlinuz−4.19.28.container	140/usr/share/kata−containers/vmlinuz−4.19.28.container
Host arch	arm64	arm64
Host Distro	Ubuntu	Ubuntu
Host DistVer	18.04	18.04
Host Model	v8	v8
Host Krnl	5.0.7	5.0.7
runtime	kata−runtime	kata−runtime

Figure 1: System configuration details