How Fast Was My Database?

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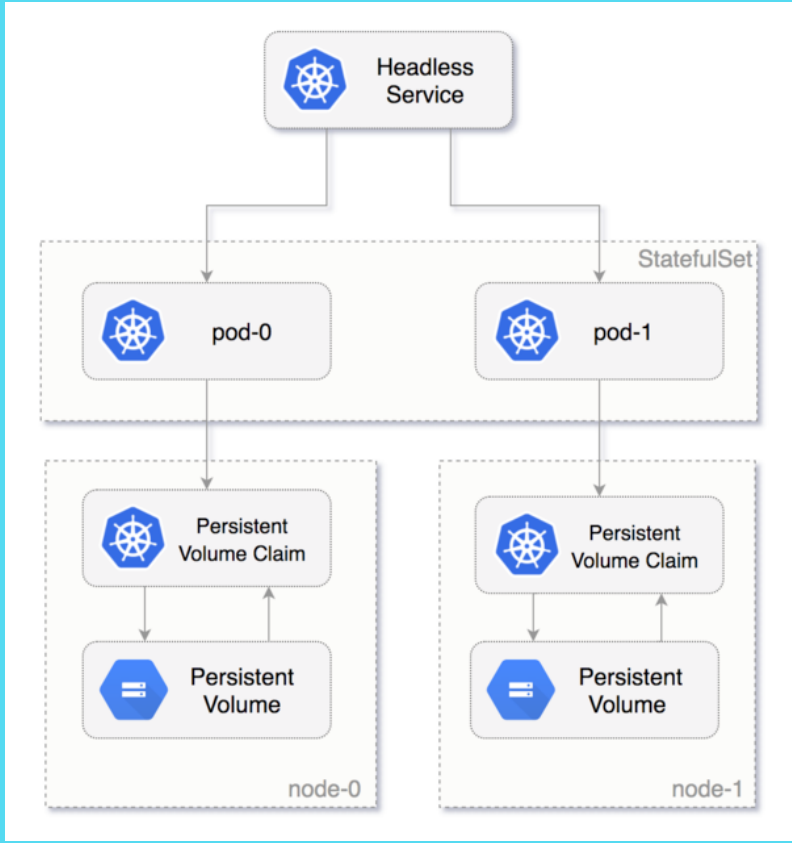
Red Hat OSAS
KubeCon Seattle 2018

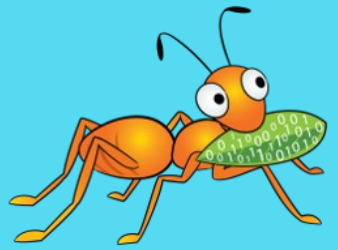
Kubernetes 1.0

(stateless)

v1.4: StatefulSet



All The Stateful Things




STATEFUL APPLICATIONS
LIGHTYEAR
STATEFUL APPS EVERYWHERE
imgflip.com

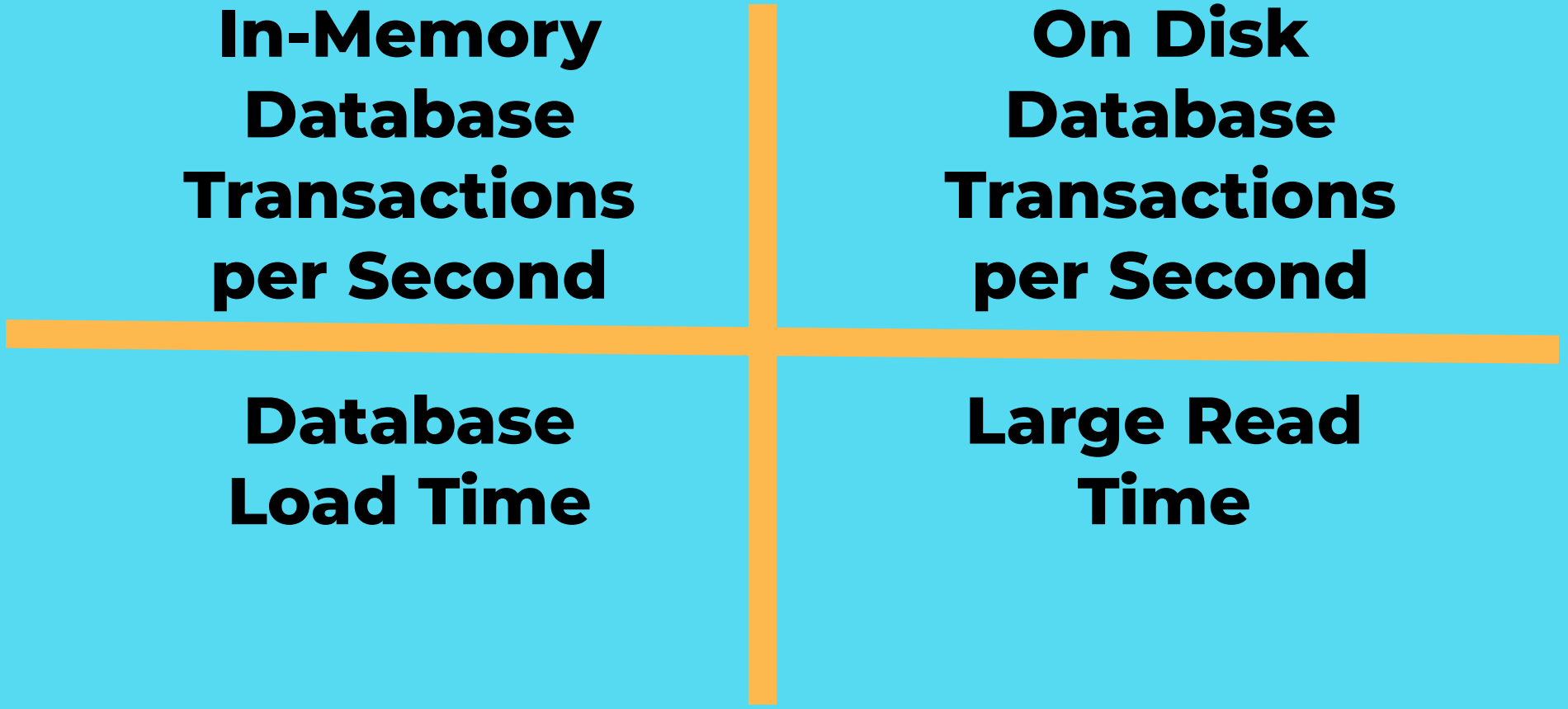

FULL THROTTLE DATABASE
PostgreSQL
9.2
92

How Fast?

Simple Performance Test

- 1 in-memory database
- 1 larger-than-memory database
- transaction processing test (pgbench)
- load database
- read large table

Test Stats


In-Memory Database Transactions per Second
On Disk Database Transactions per Second
Database Load Time
Large Read Time

Bare Metal (control)

2317 TPS

in-memory db

1559 TPS

on-disk db

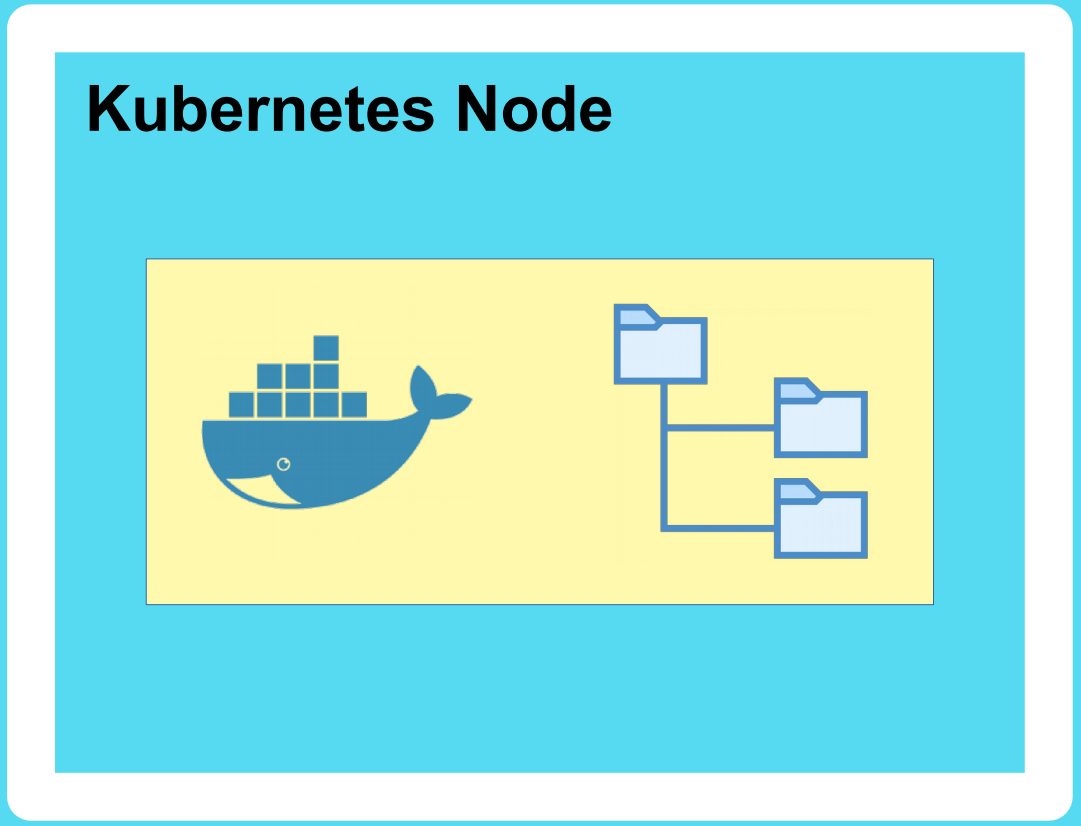
9m17s

load time

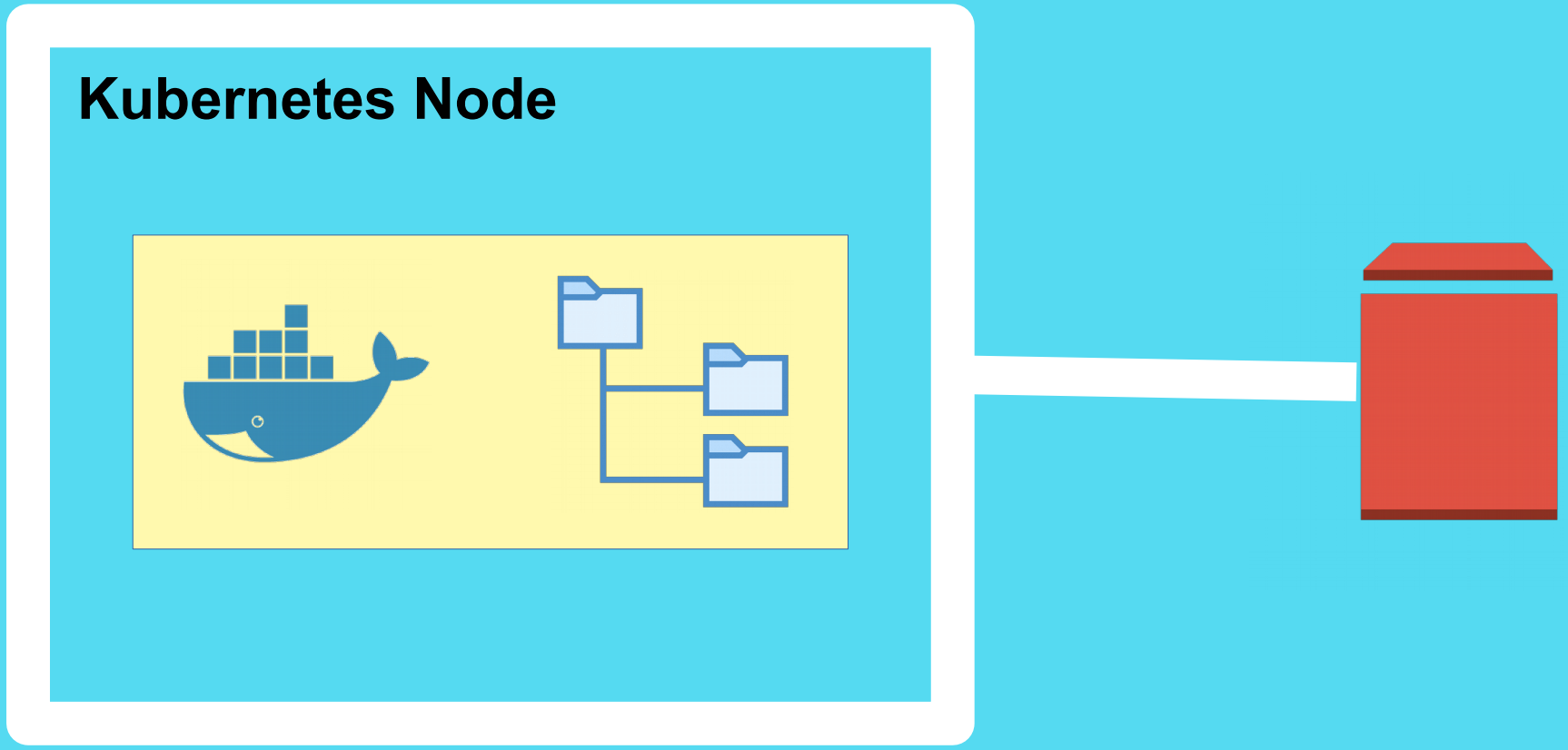
2m15s

read time

Emphemeral Storage



Emphemeral Storage



Ephemeral Storage

2337 TPS

in-memory db

1117 TPS

on-disk db

8m52s

load time

2m54s

read time

Ephemeral Storage

2337 TPS

in-memory db

1117 TPS

on-disk db

8m52s

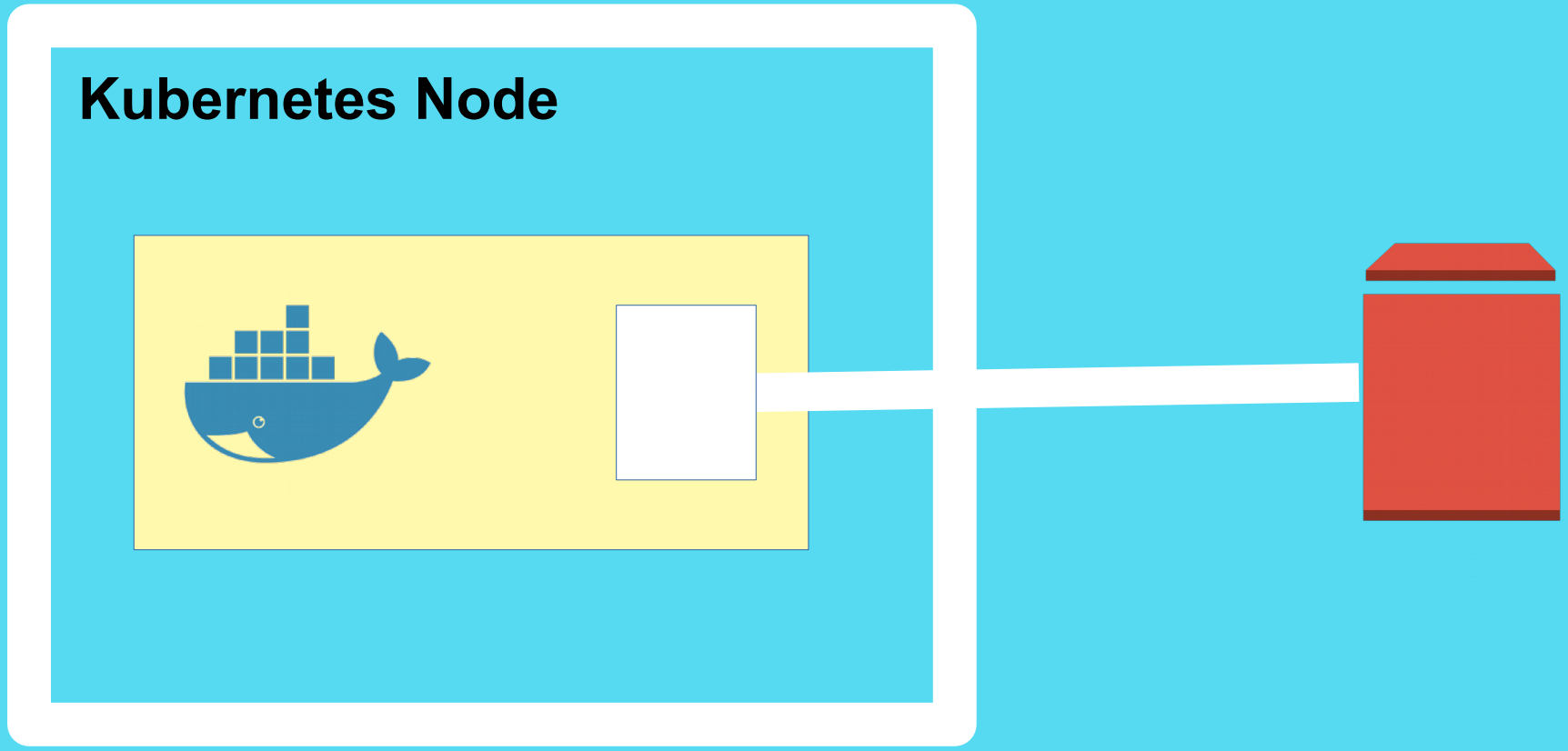
load time

2m54s

read time

```
resources:
  limits:
    cpu: "3"
    memory: 8Gi
  requests:
    cpu: "3"
    memory: 8Gi
```

Cloud Provider Storage



Cloud Provider Storage

2293TPS

in-memory db

1105TPS

on-disk db

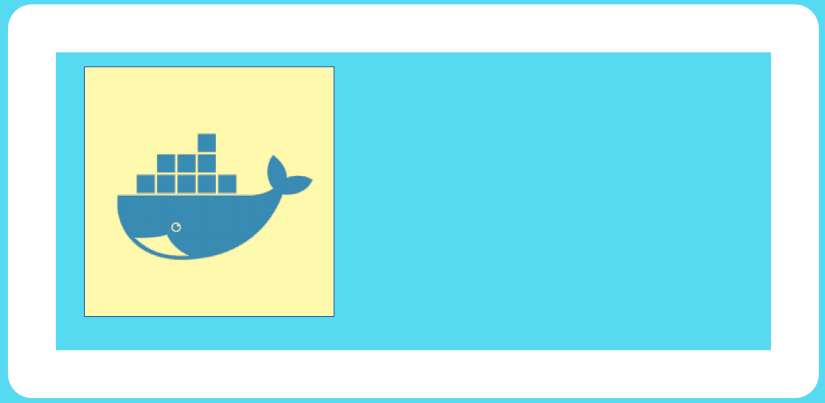
9m19s

load time

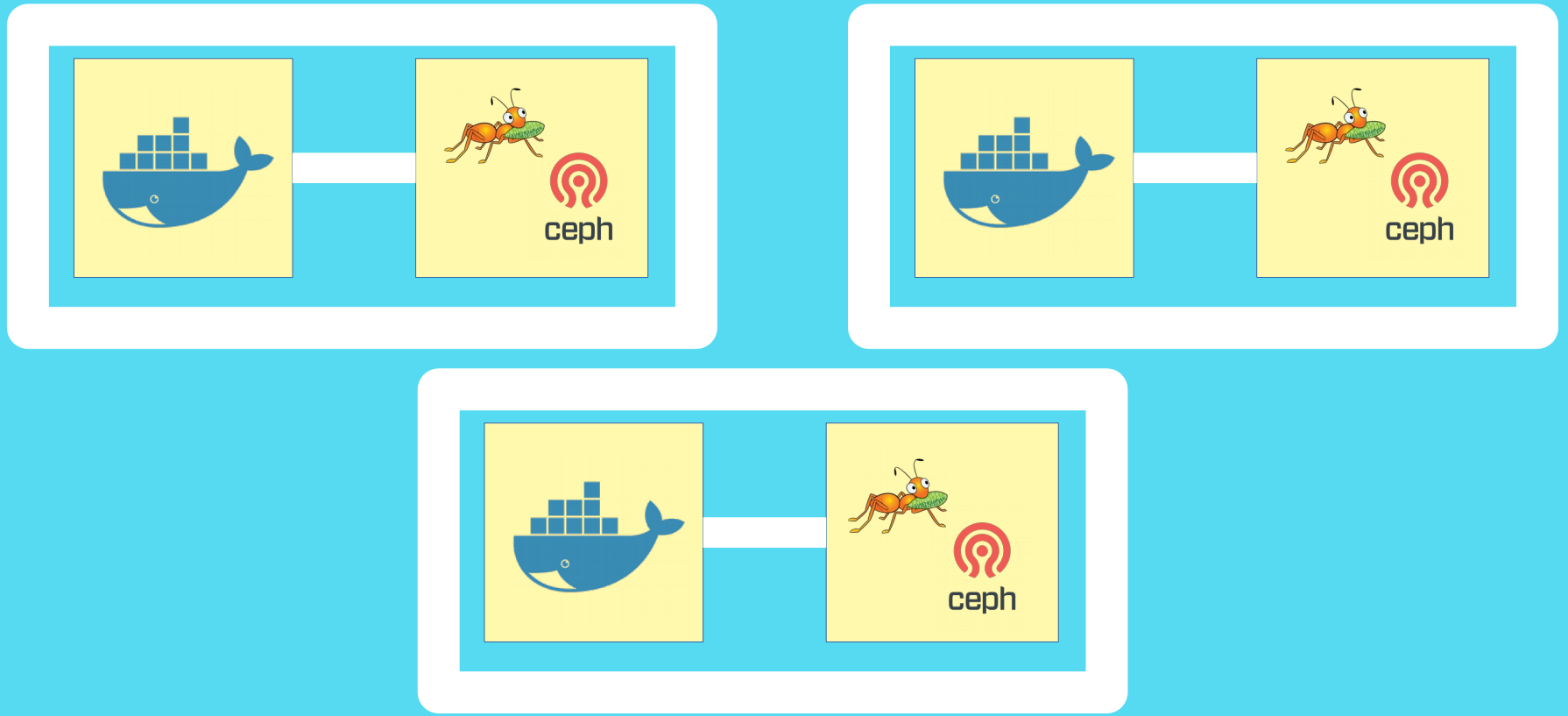
2m55s

read time

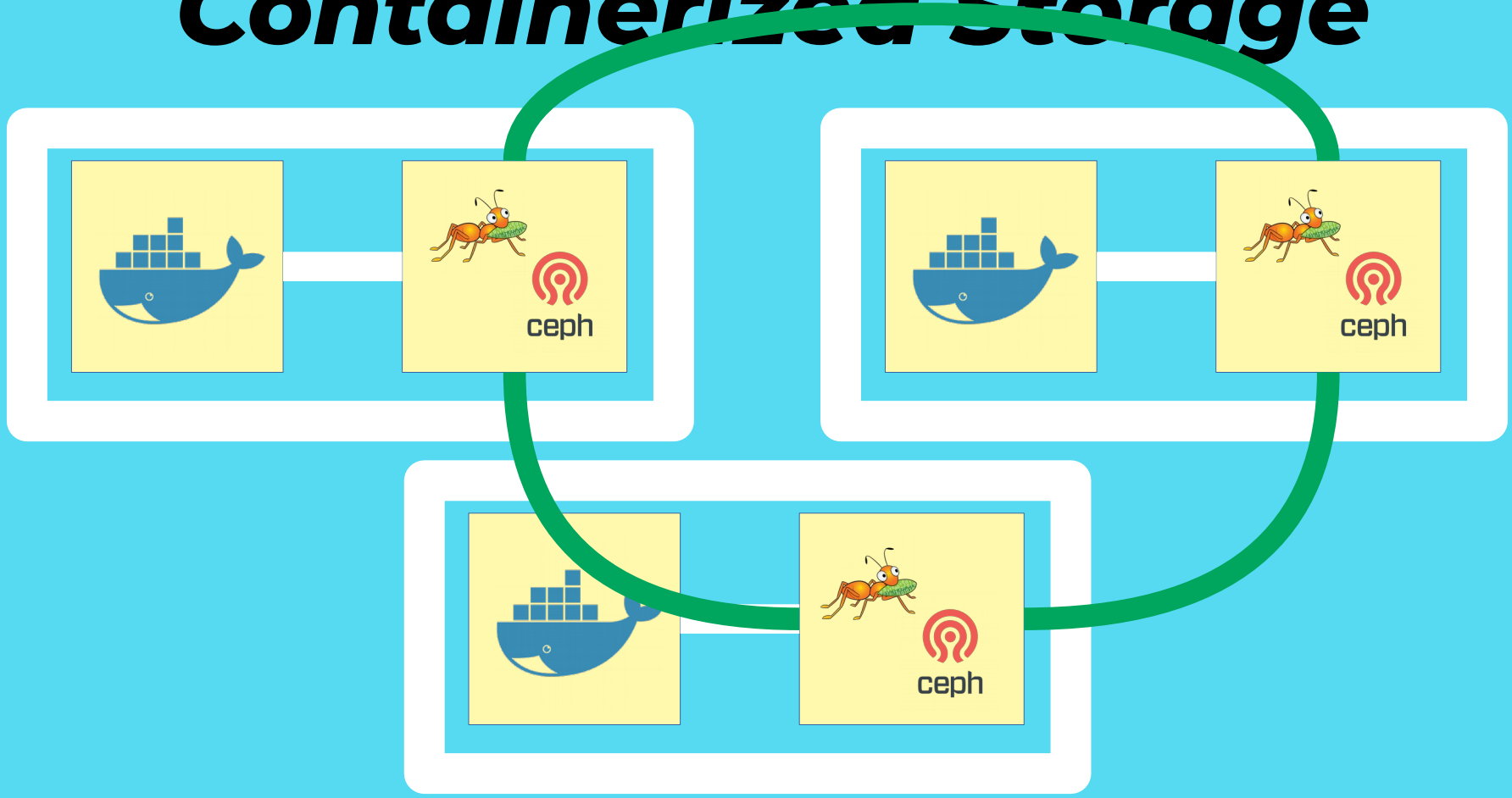
Containerized Storage



Containerized Storage



Containerized Storage



Containerized GlusterFS

513TPS

in-memory db

276TPS

on-disk db

19m**8**s

load time

3m**11**s

read time

Containerized Ceph+Rook

1541TPS

in-memory db

691TPS

on-disk db

12m13s

load time

2m33s

read time

Conclusions

- Don’t worry about storage performance for ephemeral and cloud provider storage.
- Containerized storage sacrifices performance for redundancy, and different types optimize for different workloads.

contact/copyright

- Come see us in the Red Hat booth for storage demos!
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