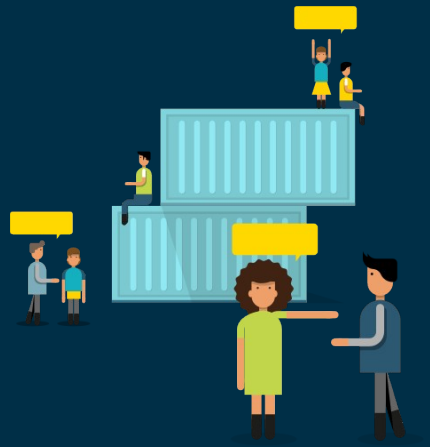


APPLICATION MIGRATION AND MODERNIZATION ON APPUiO SWISS CONTAINER PLATFORM / OPENSHIFT TECHLAB

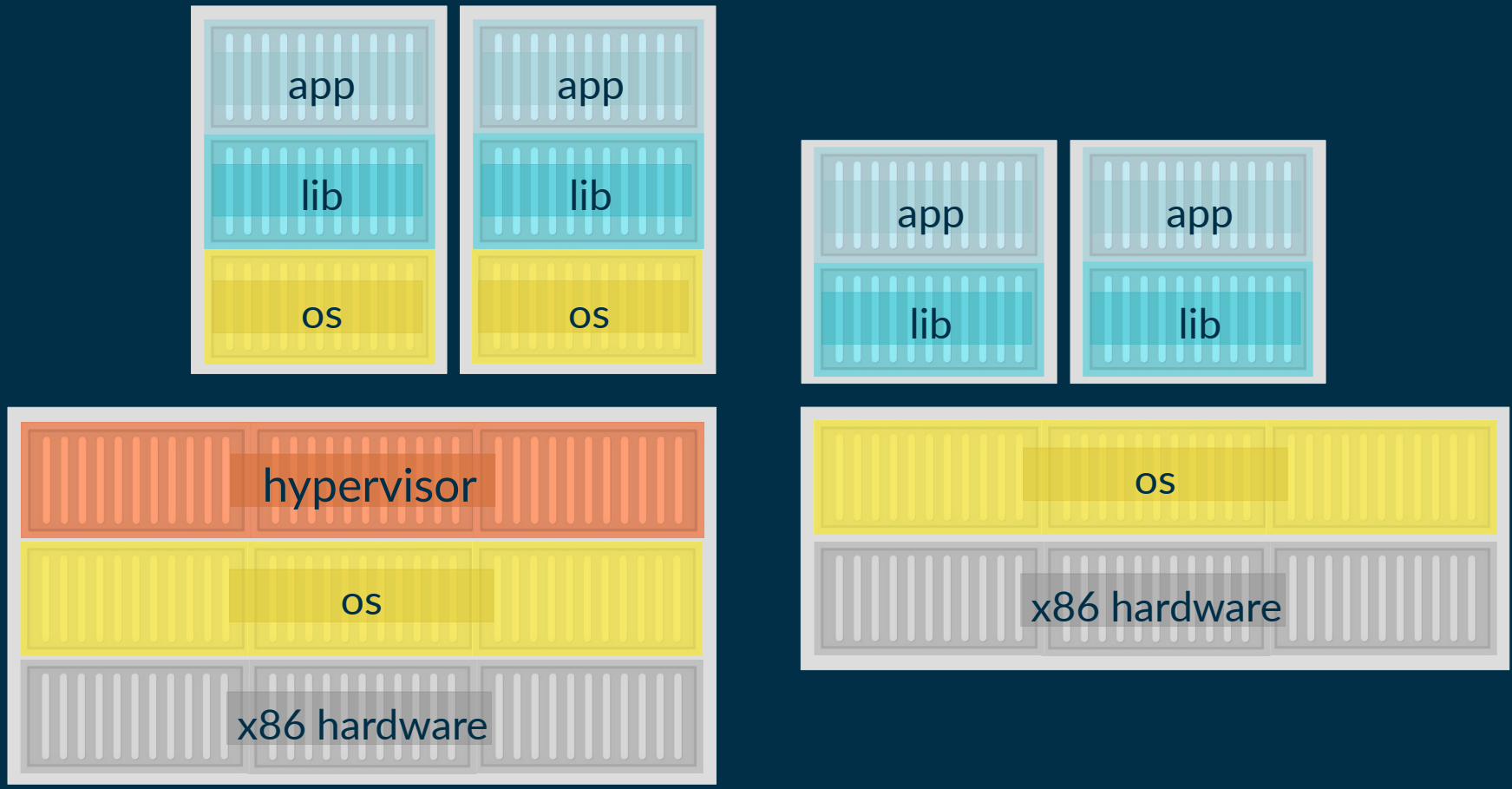
Containers and OpenShift Recap

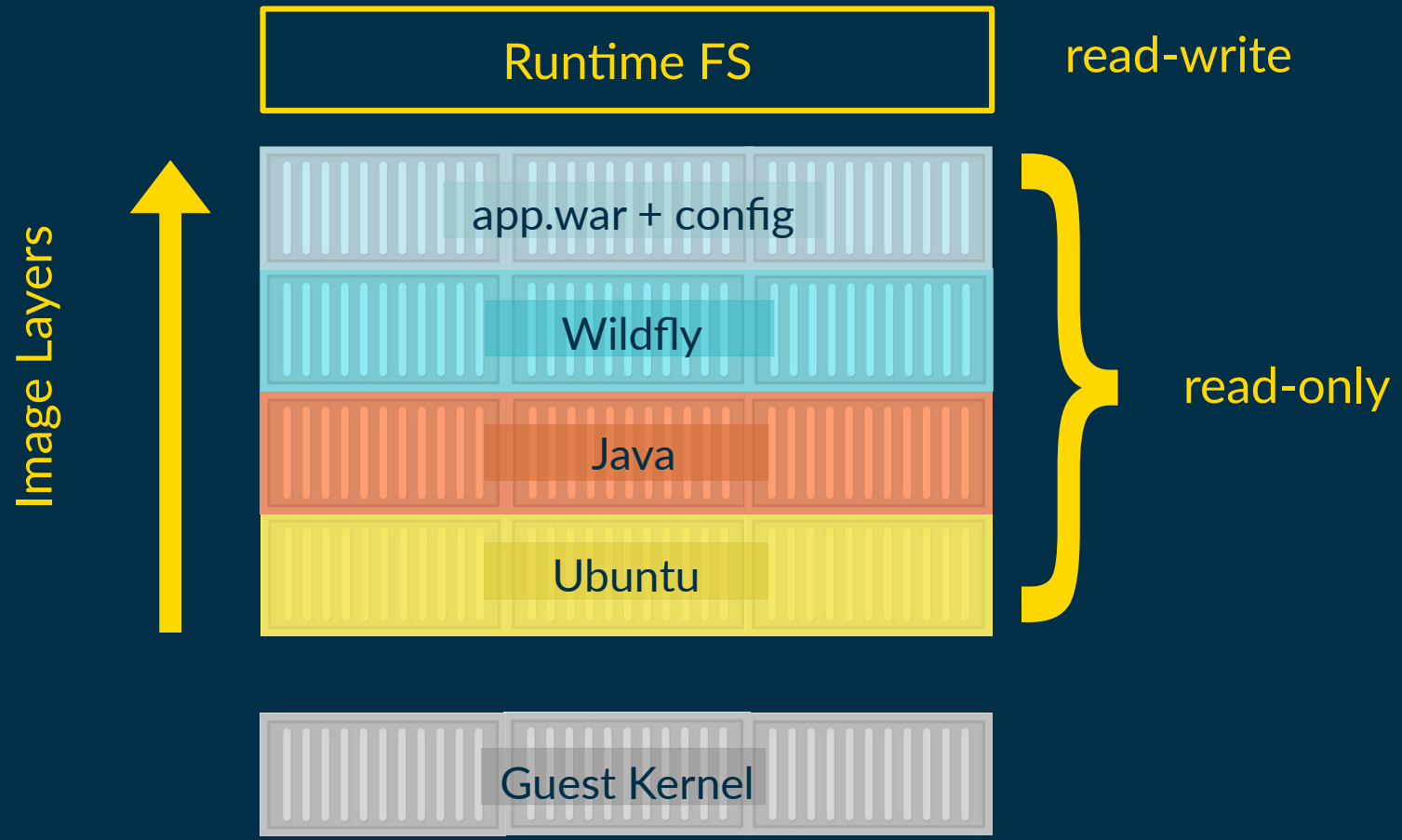
Nothing new!

…except

Tools

Ökosystem


app
lib
os
app
lib
os
hypervisor
os
x86 hardware
app
lib
app
lib
os
x86 hardware


Runtime FS
read-write
app.war + config
Wildfly
Java
Ubuntu
read-only
Image Layers
Guest Kernel

```
package main

import (
    "fmt"
    "net/http"
)

func main() {
    http.HandleFunc("/", HelloServer)
    http.ListenAndServe(":8080", nil)
}

func HelloServer(w http.ResponseWriter, r *http.Request) {
    fmt.Fprintf(w, "Hello, %s!", r.URL.Path[1:])
}
```

```
FROM registry.access.redhat.com/ubi8/go-toolset:1.13.4
COPY main.go /opt/app-root/src
RUN  env CGO_ENABLED=0 GOOS=linux GOARCH=amd64 go build -a -o go-hello-world-app .

FROM registry.access.redhat.com/ubi8/ubi:8.2
RUN  useradd -ms /bin/bash golang
RUN  chgrp -R 0 /home/golang && \
     chmod -R g+rwX /home/golang
USER golang
COPY --from=0 /opt/app-root/src/go-hello-world-app /home/golang/
EXPOSE 8080
CMD /home/golang/go-hello-world-app
```

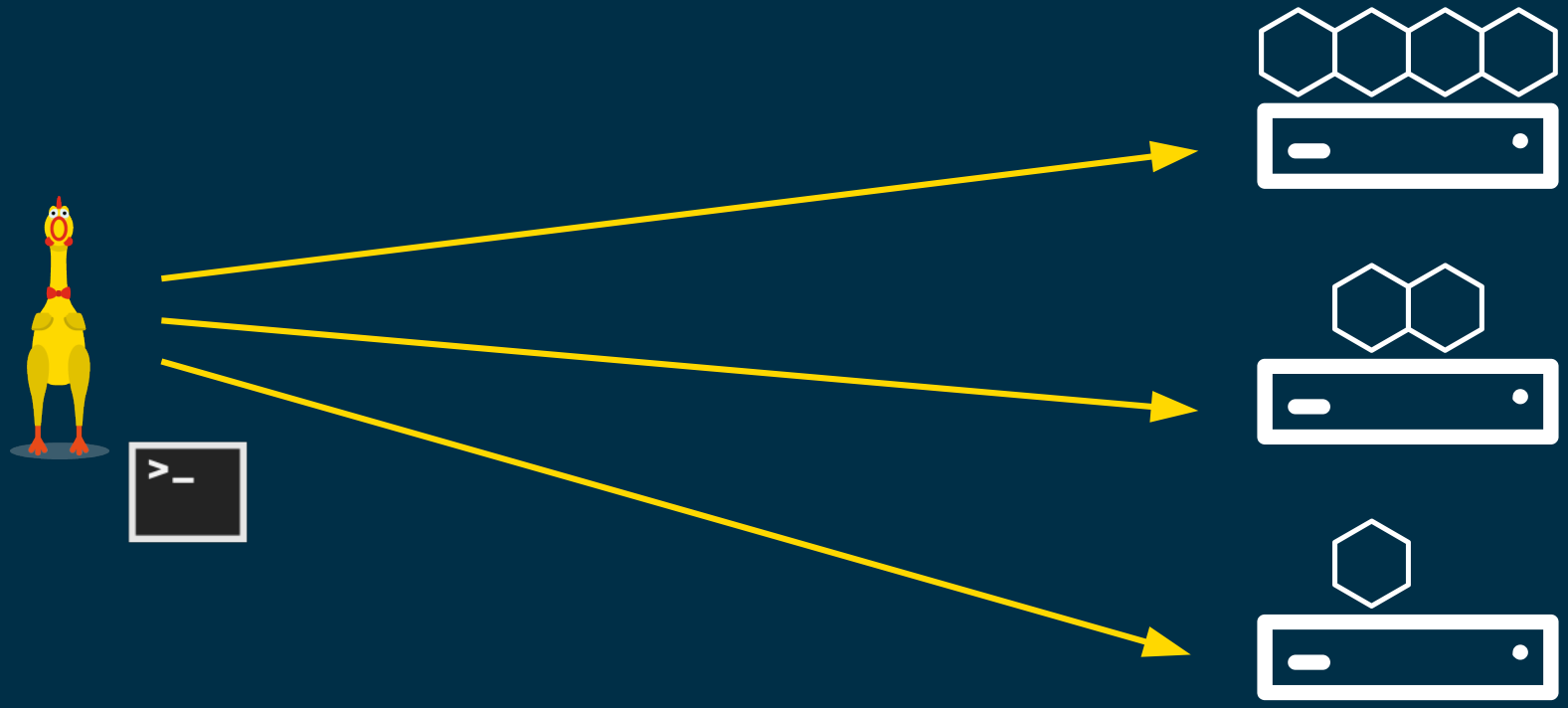
```
hannelore$
```

```
hannelore$
```


OPENSHIFT


docker

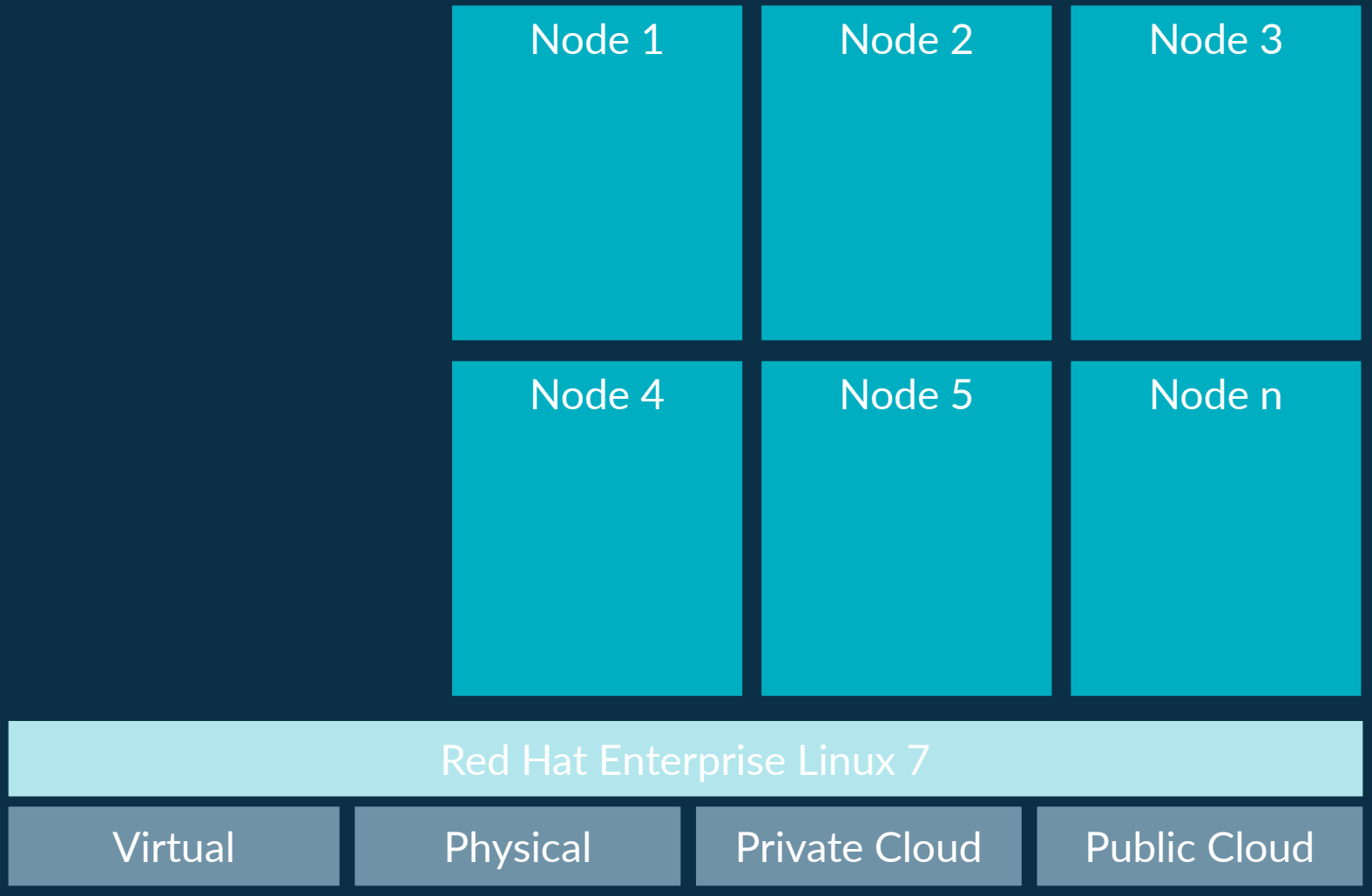

kubernetes



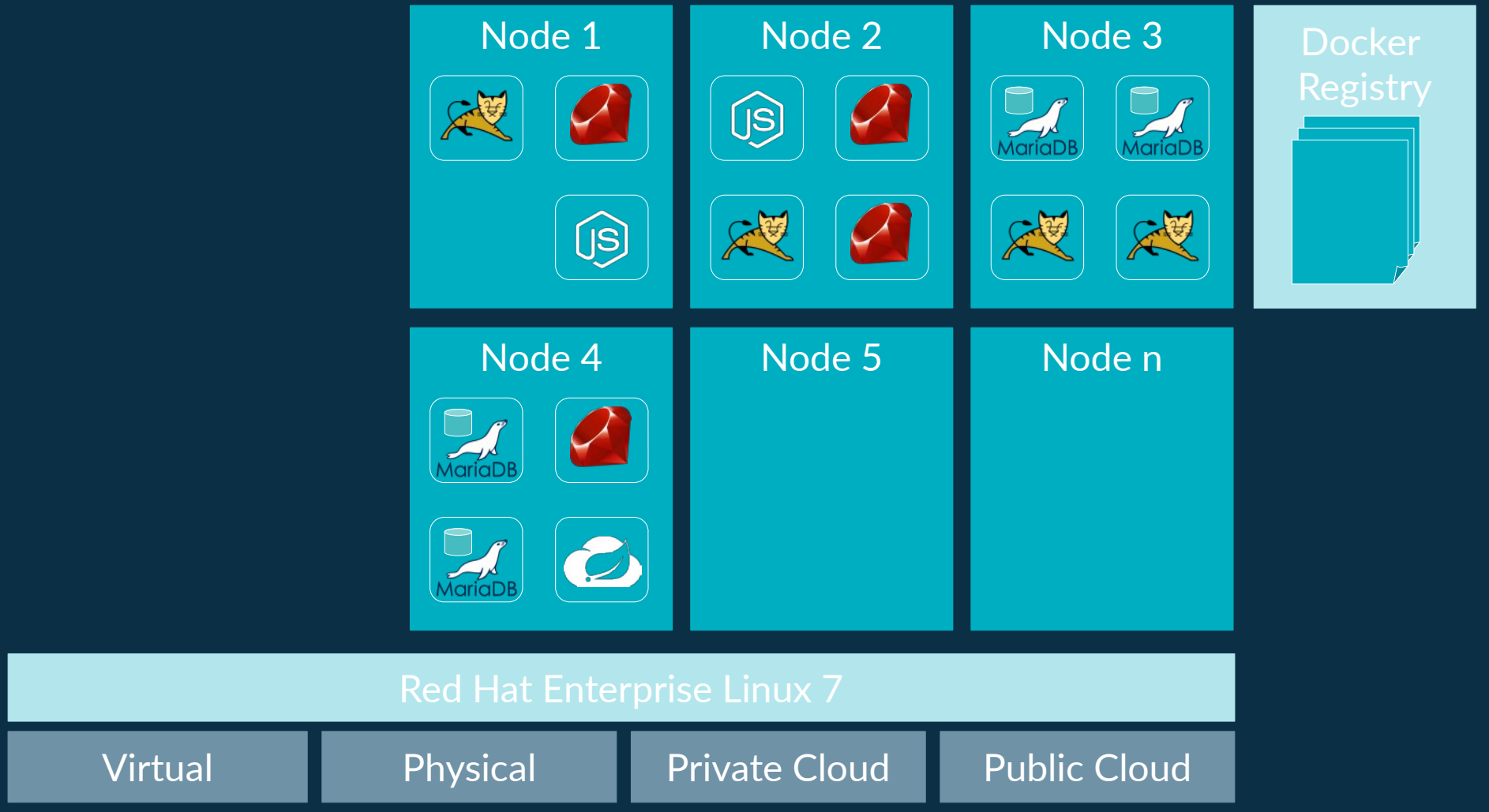
- Scheduling
- Scaling
- Health Checking
- Secret Management

Architecture

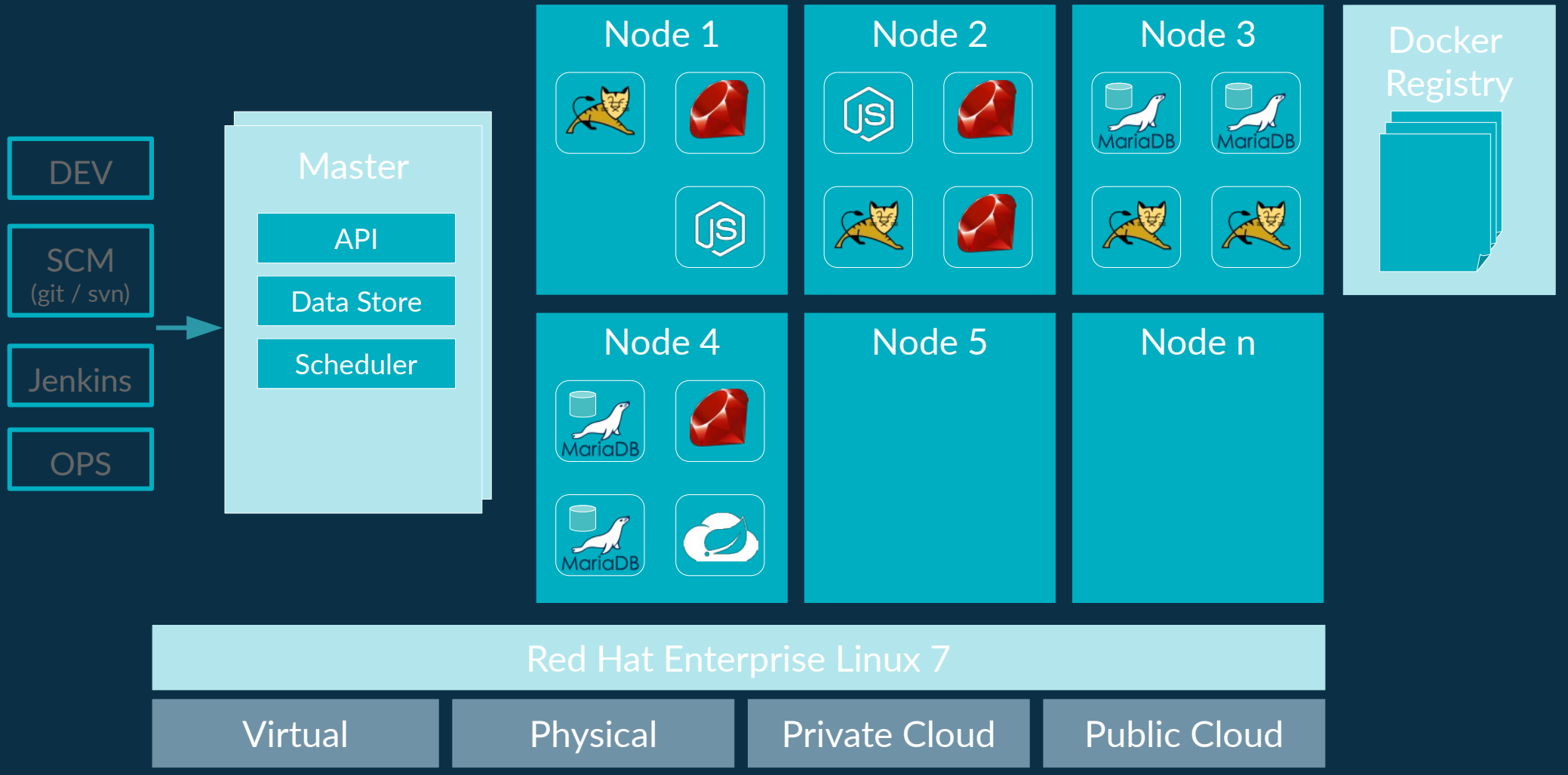
Compute nodes



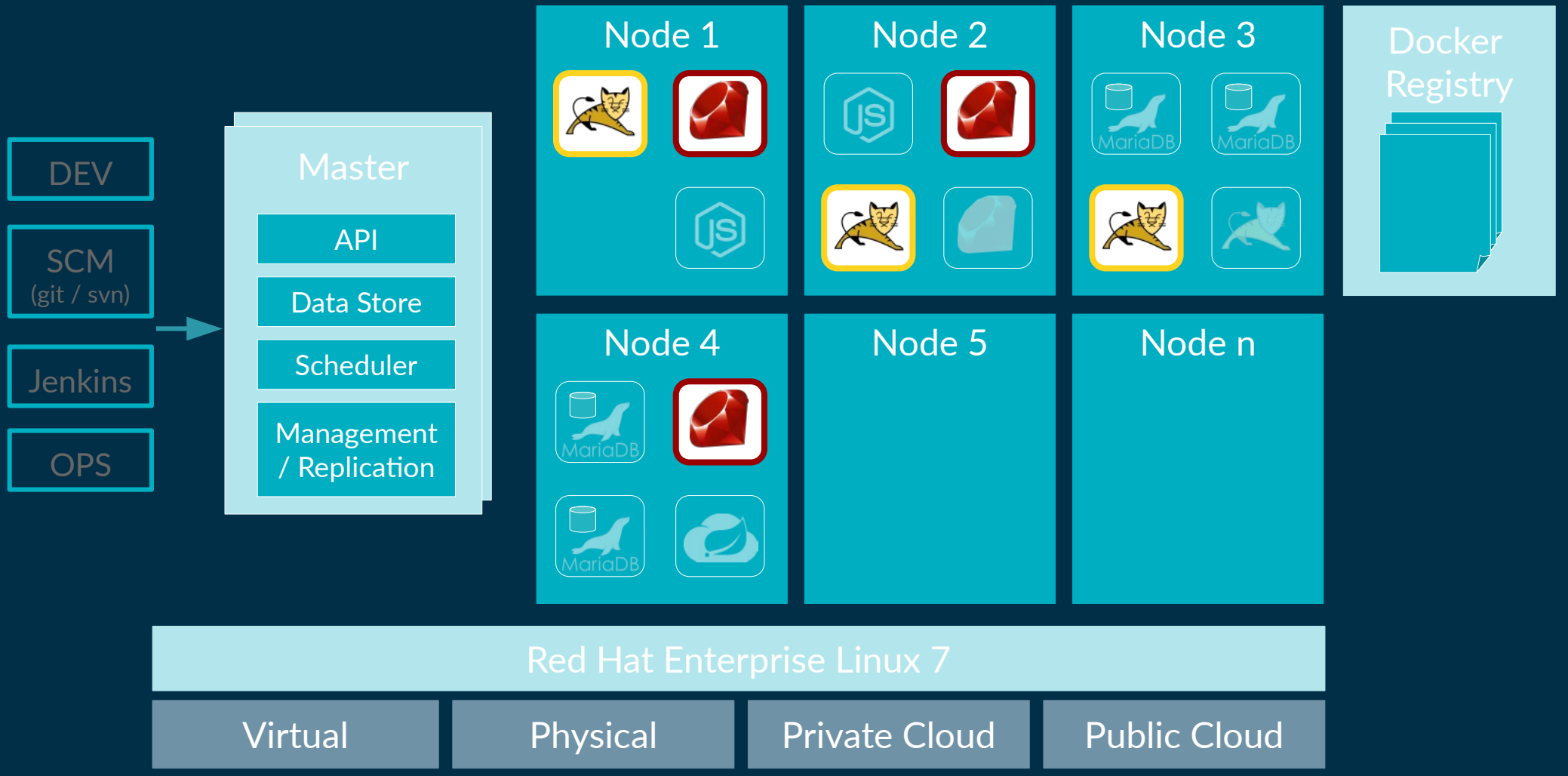
Pods


Node 1
Node 2
Node 3
Docker Registry
MariaDB
MariaDB
Node 4
Node 5
Node n
MariaDB
MariaDB
Red Hat Enterprise Linux 7
Virtual
Physical
Private Cloud
Public Cloud

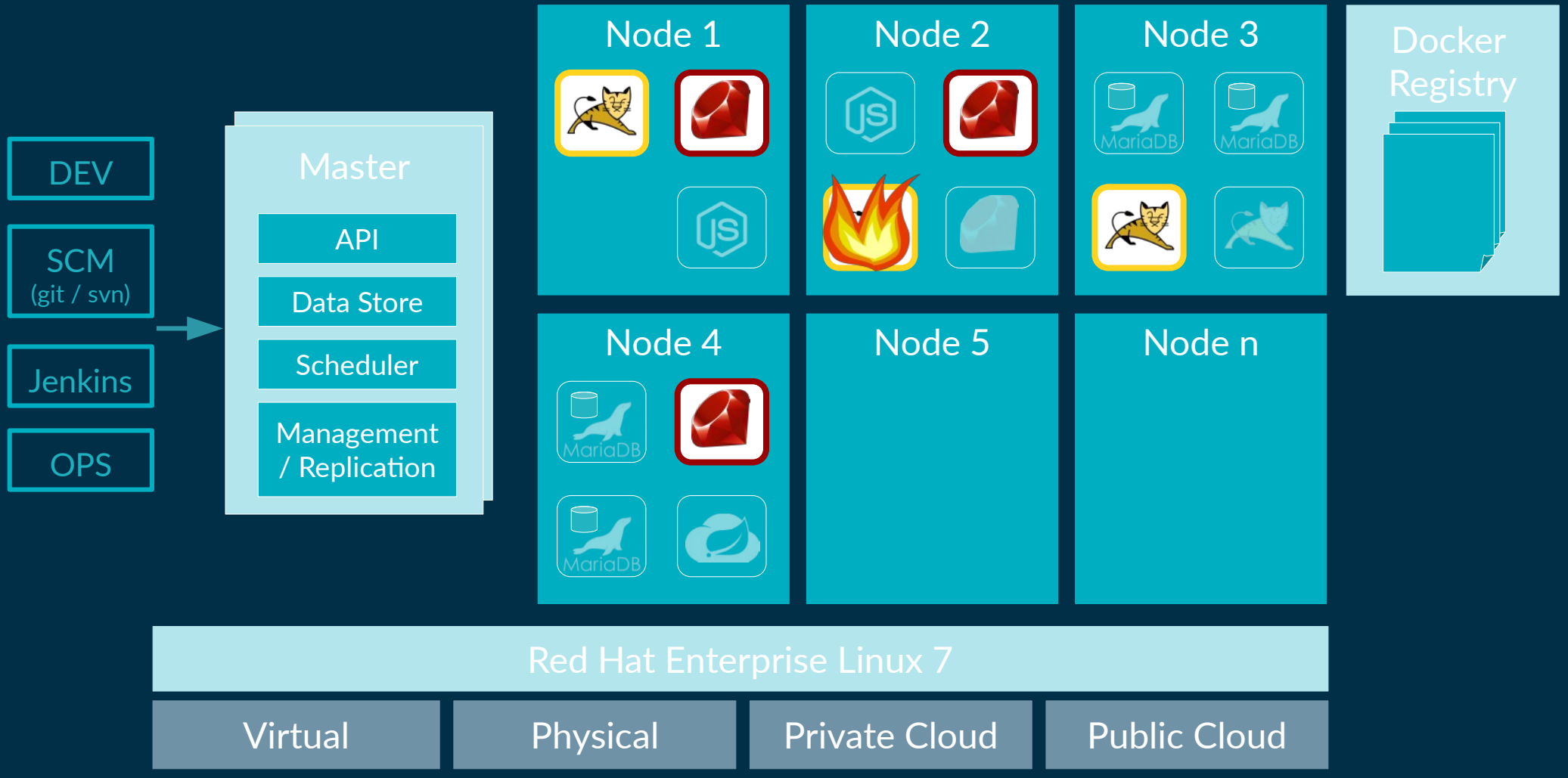
Master


DEV
SCM
(git / svn)
Jenkins
OPS
Master
API
Data Store
Scheduler
Node 1
Node 2
Node 3
Node 4
Node 5
Node n
MariaDB
MariaDB
MariaDB
MariaDB
Docker
Registry
Red Hat Enterprise Linux 7
Virtual
Physical
Private Cloud
Public Cloud

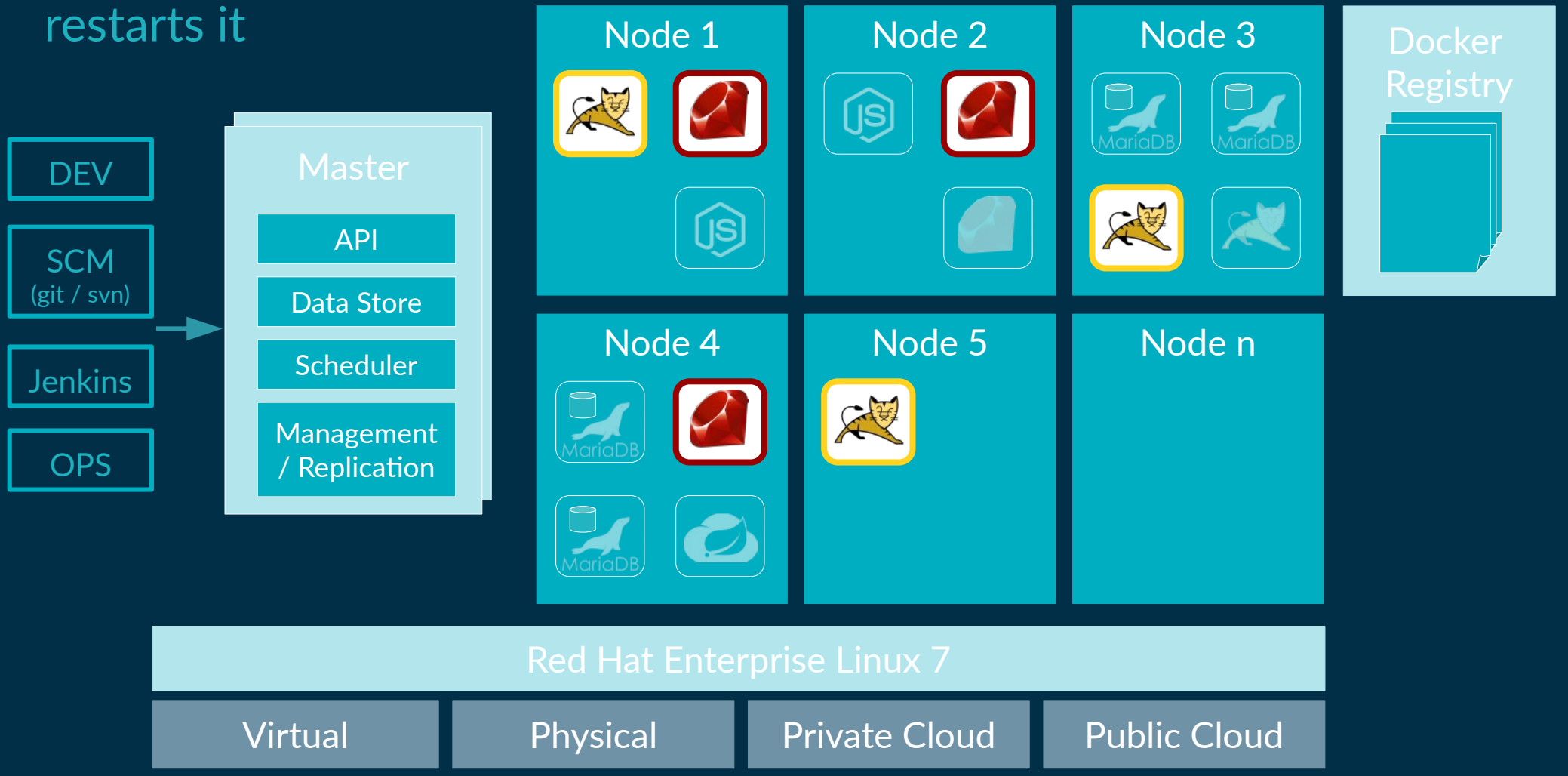
Replication controller



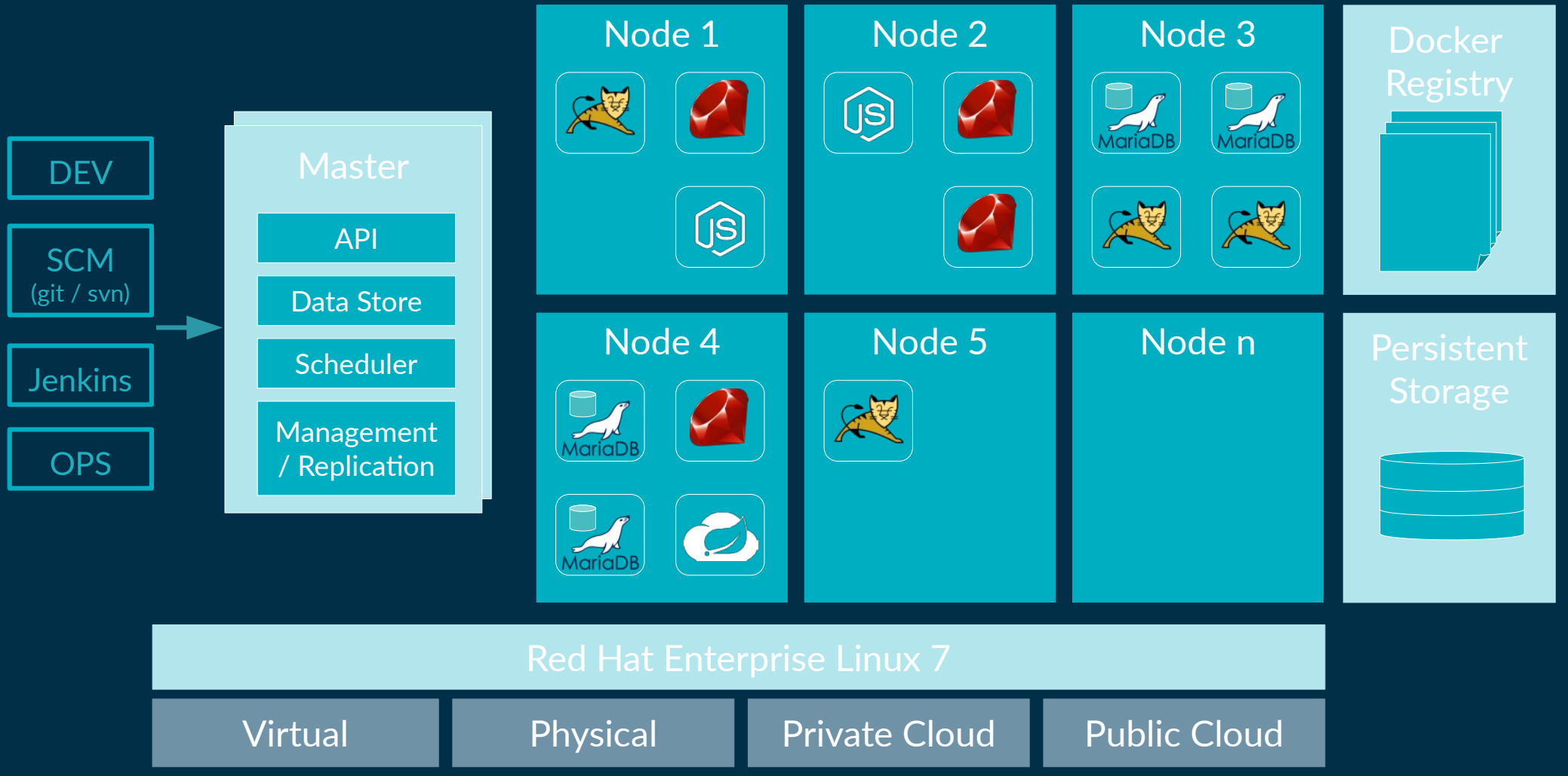
Pod crashes...

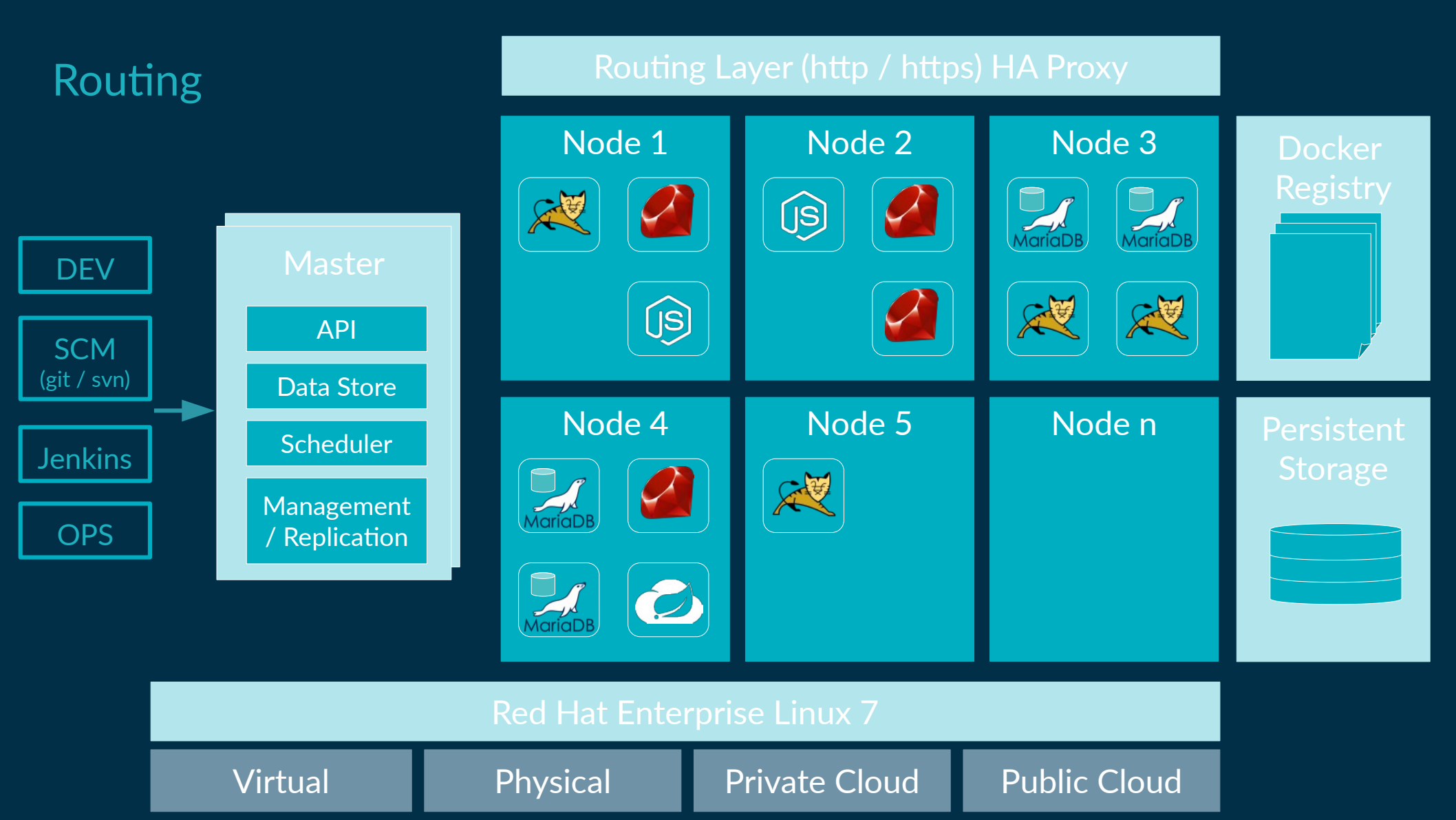

DEV
SCM
(git / svn)
Jenkins
OPS
Master
API
Data Store
Scheduler
Management
/ Replication
Node 1
Node 2
Node 3
Node 4
Node 5
Node n
MariaDB
MariaDB
MariaDB
MariaDB
Docker
Registry
Red Hat Enterprise Linux 7
Virtual
Physical
Private Cloud
Public Cloud

… Kubernetes restarts it



Persistent storage




Routing
Routing Layer (http / https) HA Proxy
Node 1
Node 2
Node 3
Docker Registry
DEV
SCM (git / svn)
Jenkins
OPS
Master
API
Data Store
Scheduler
Management / Replication
MariaDB
MariaDB
Node 4
Node 5
Node n
MariaDB
Persistent Storage
Red Hat Enterprise Linux 7
Virtual
Physical
Private Cloud
Public Cloud

Techlab – Hands-on 2

Techlab Inhalte

Containerisierung einer Applikation, Bestpractices

Schritt für Schritt Deployment einer Applikation

- 2 Microservices REST
- 2 Microservices Eventdriven mit Kafka

Tekton Pipeline, ArgoCD Gitops

Application Monitoring mit Prometheus

Tracing mit Jaeger

Fragen?