

# Building a Secure Swarm



**Nigel Poulton**

Author & Trainer

@nigelpoulton | [www.nigelpoulton.com](http://www.nigelpoulton.com)

# Operating at Scale

Kubernetes  
Does Everything  
Hard

Swarm  
Doesn't Do Everything  
Simple



# Overview/ Summary



**Swarm Theory of Operations**

**Build a Secure Swarm**

**Orchestration Primer**

**Recap**



**Up Next:**

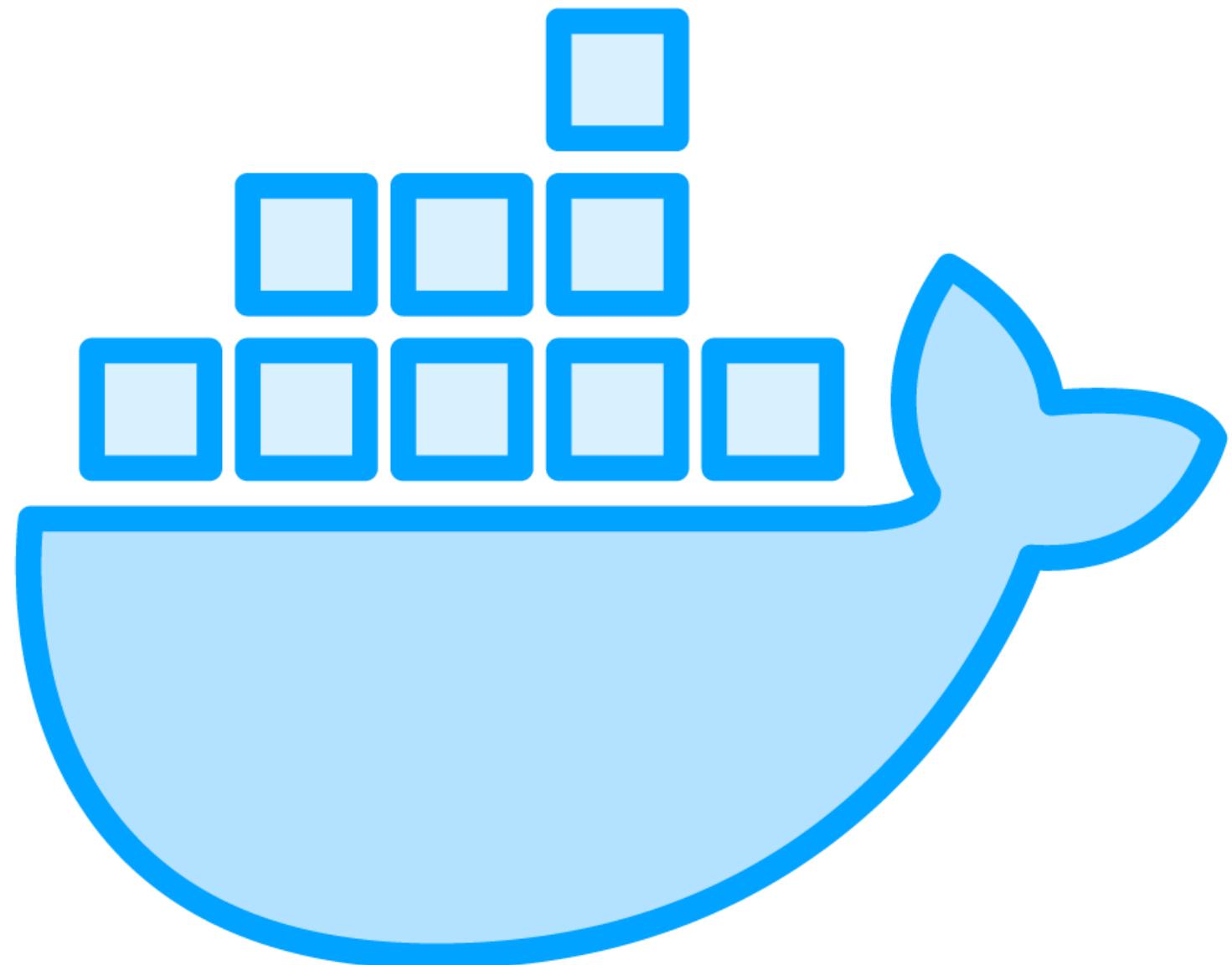
# **Swarm Theory of Operations**

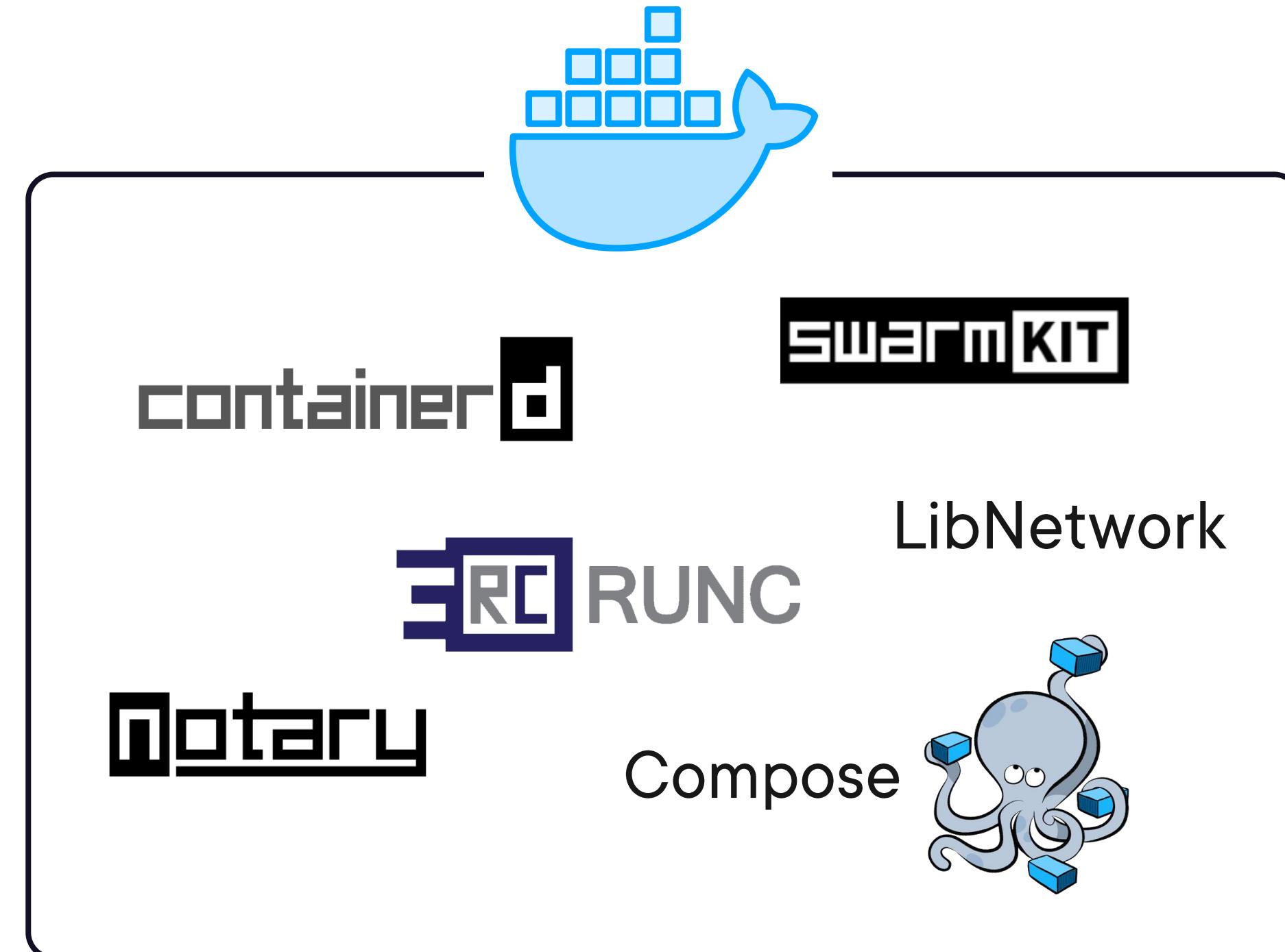
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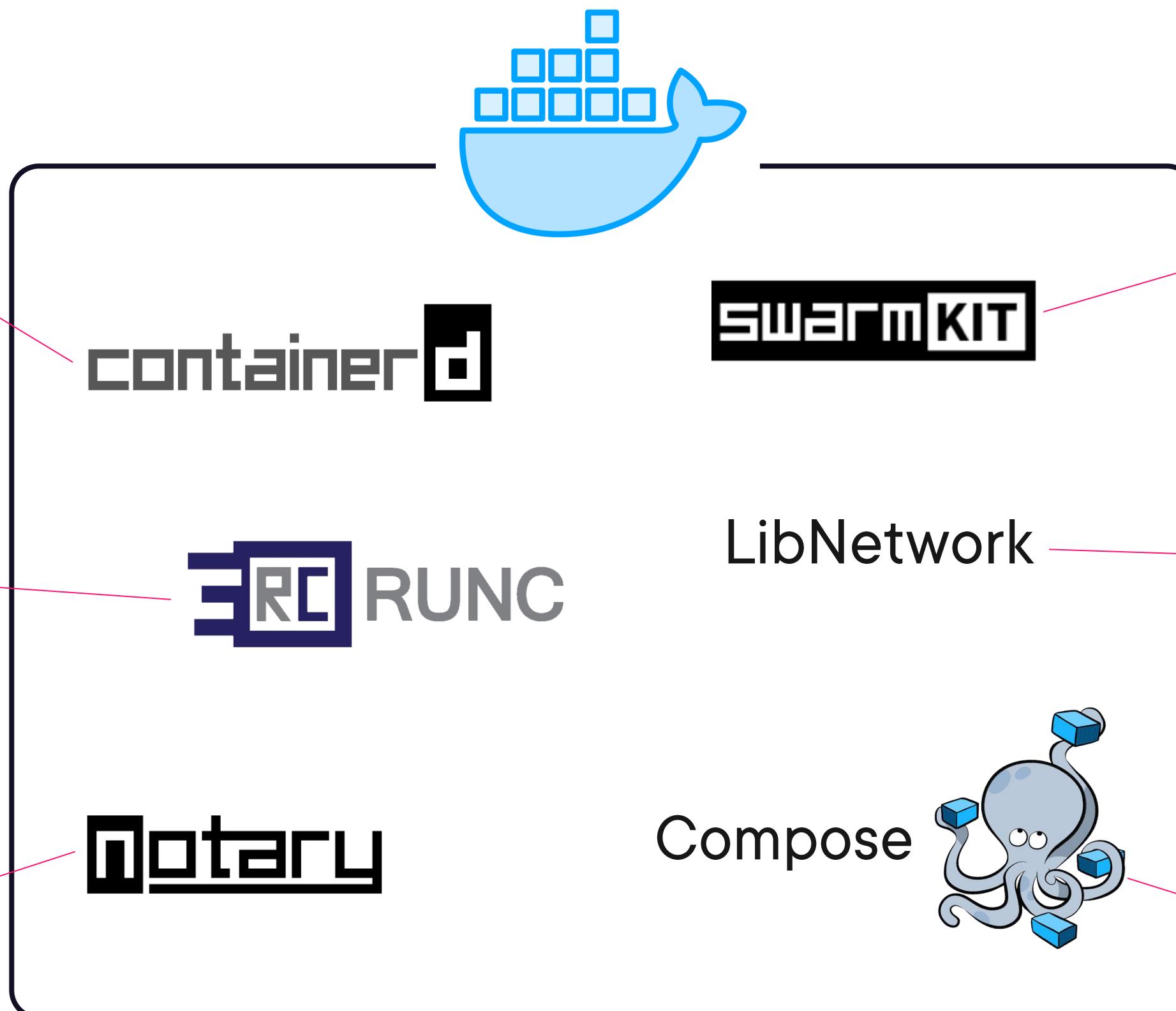




# **Swarm Theory of Operations**

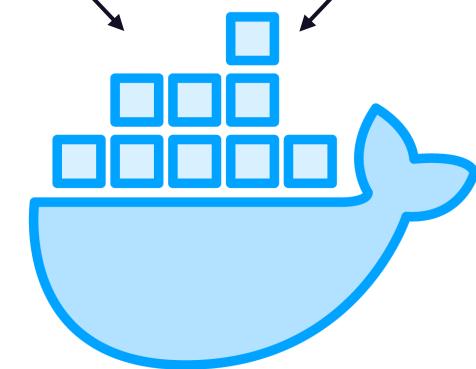






{API}

> CLI



containerd

swarmKIT

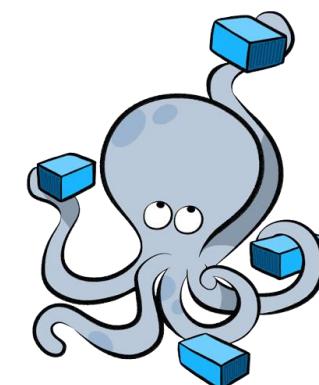
 RUNC

The RUNC logo consists of a dark blue rectangle with a white 'R' and 'C' inside, followed by the word 'RUNC' in a light gray sans-serif font.

Notary

LibNetwork

Compose





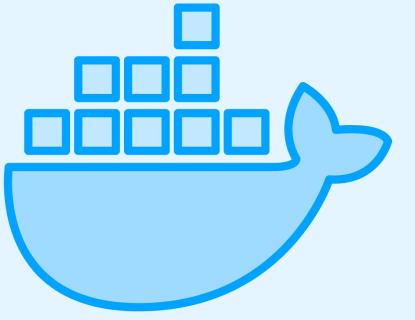
**SWARM KIT**

Clustering

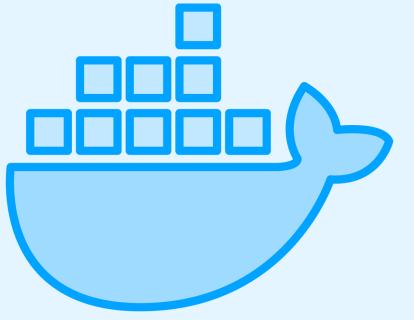


Orchestration

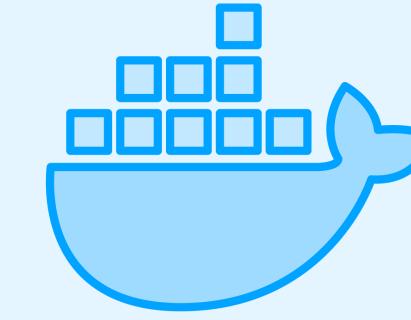




Node1

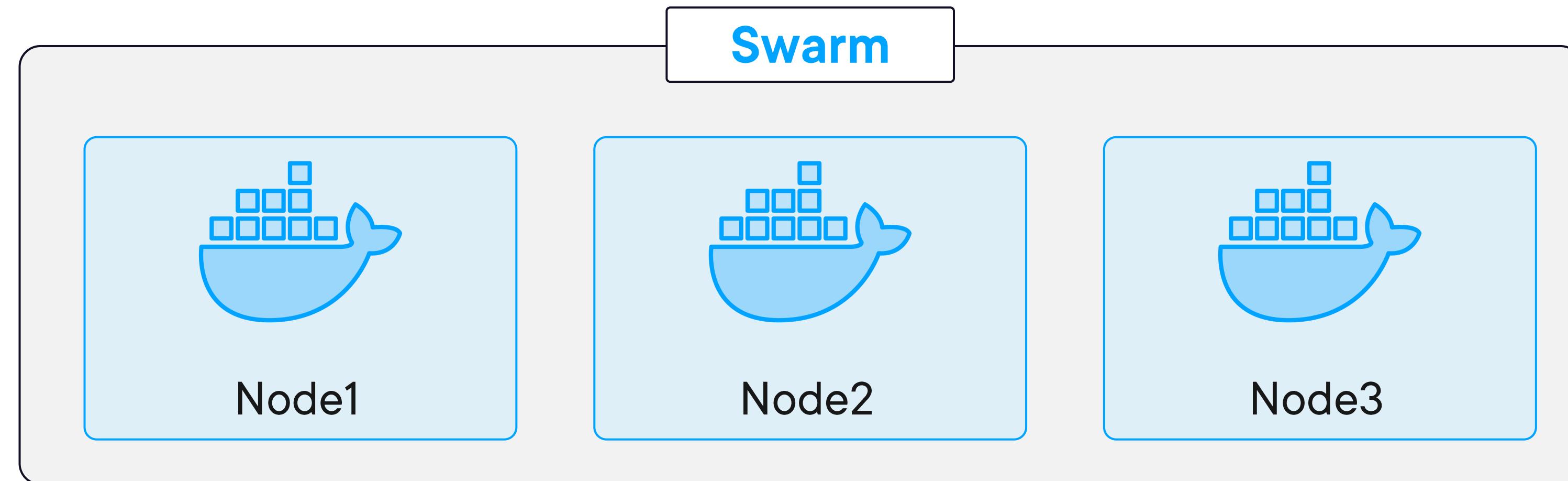


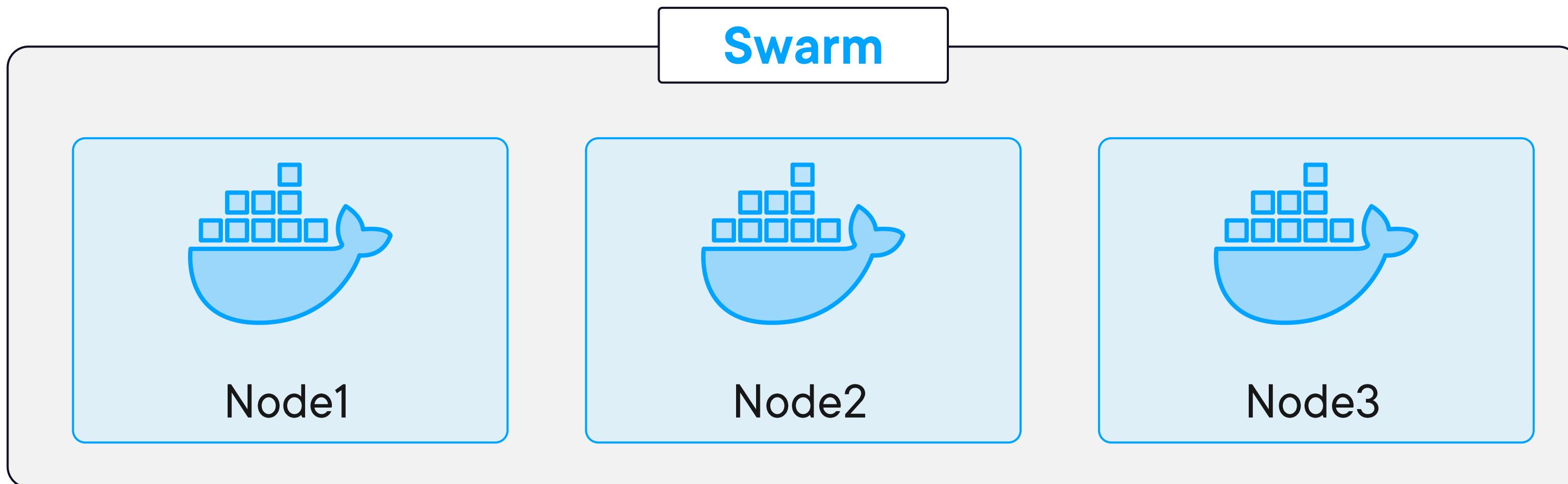
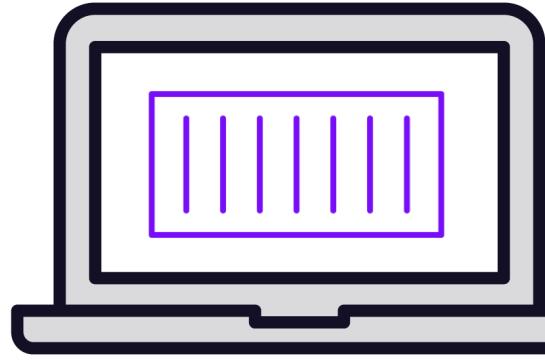
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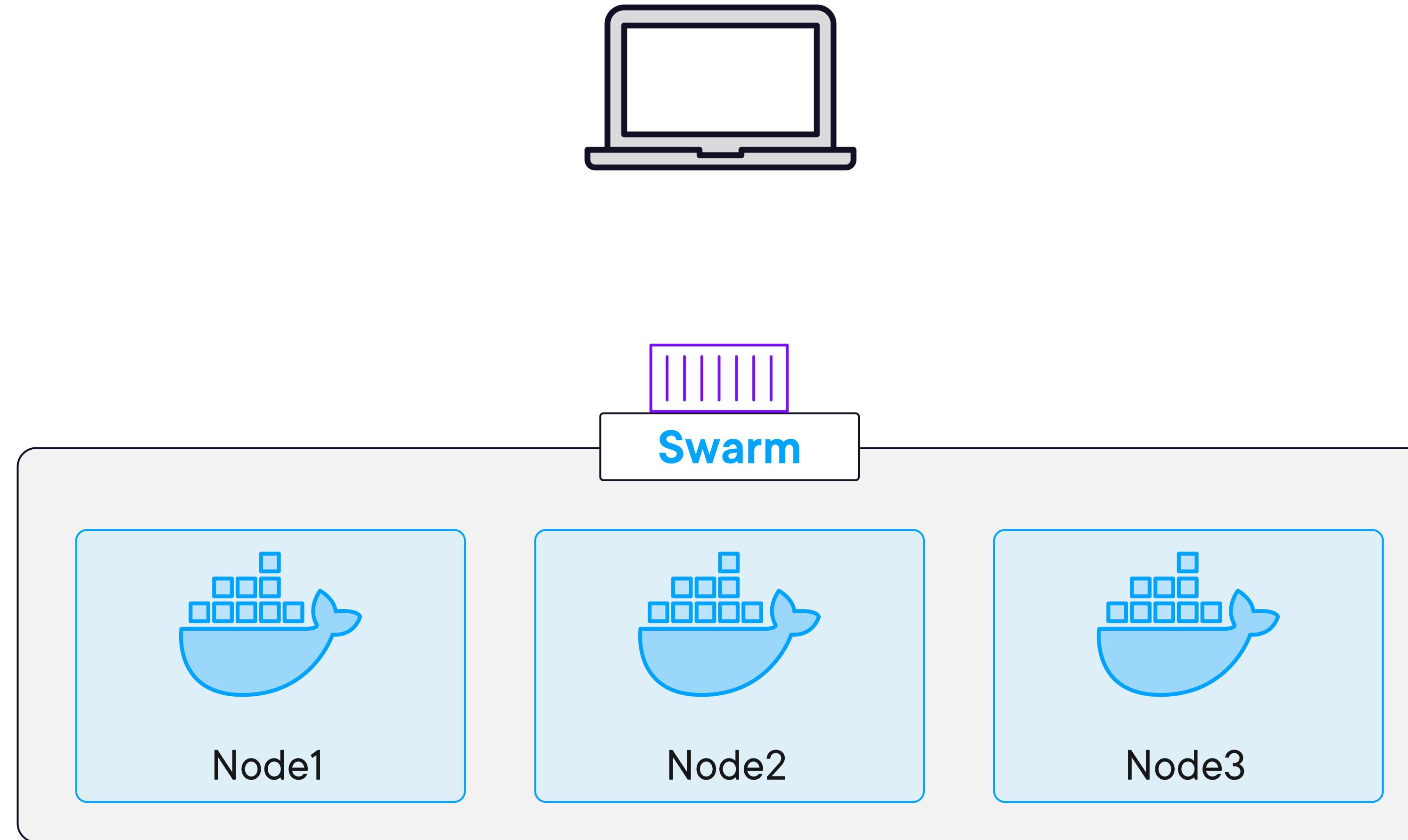


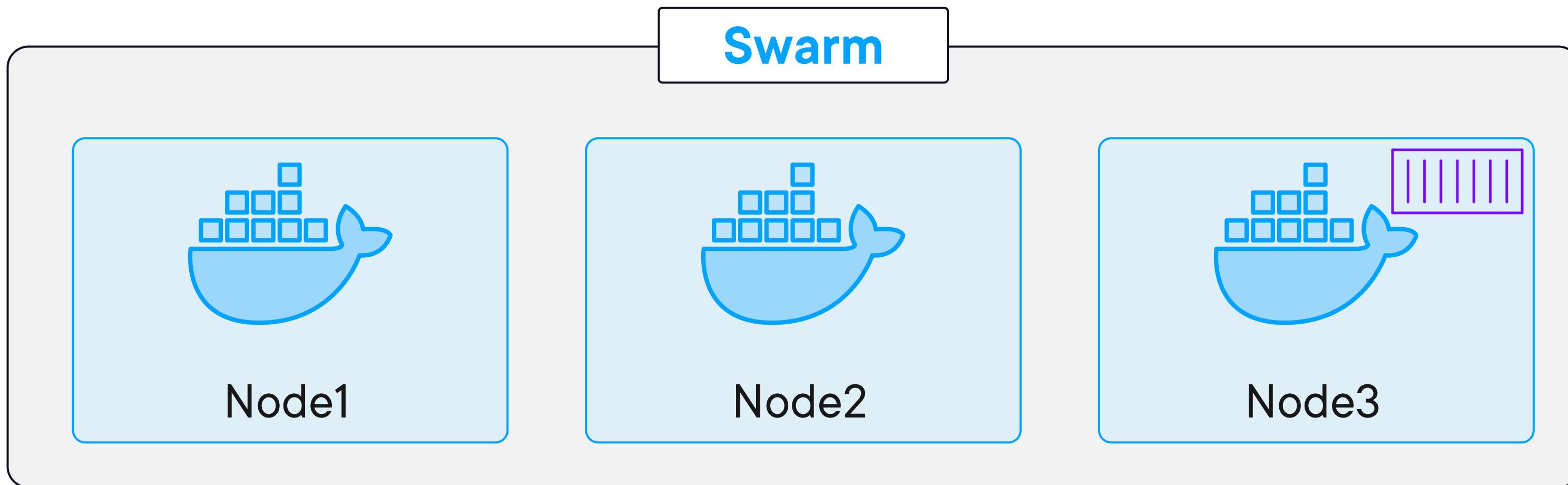
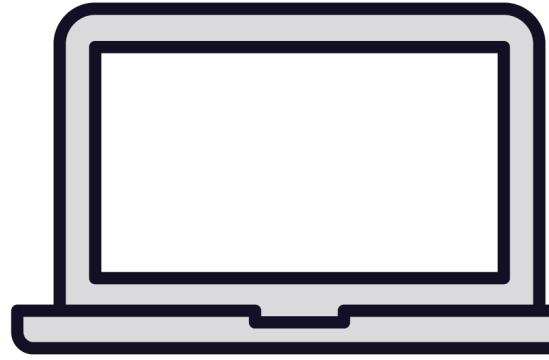
Node3

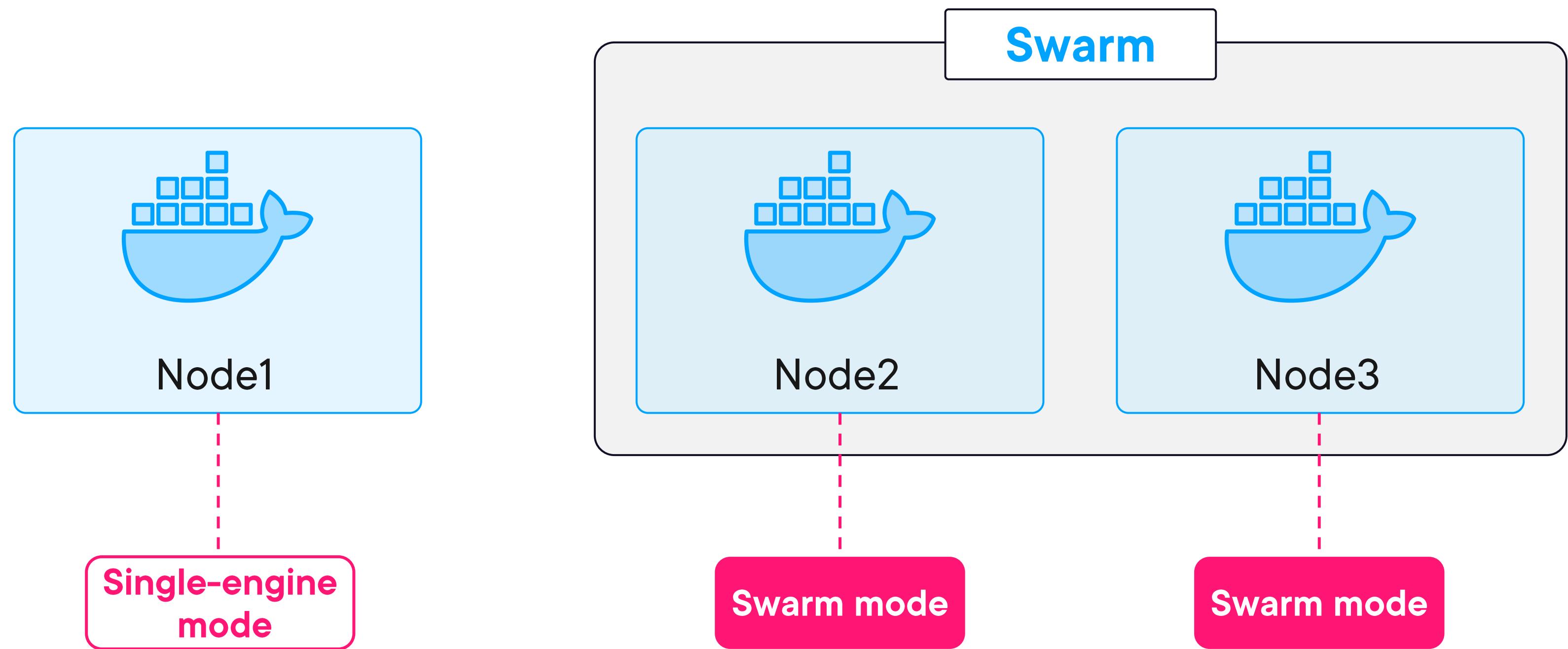




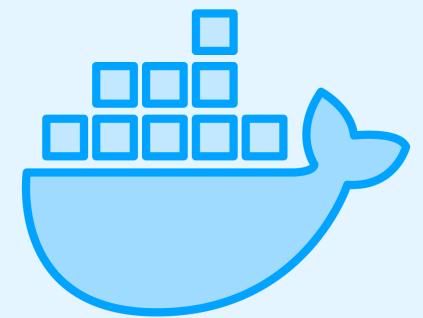








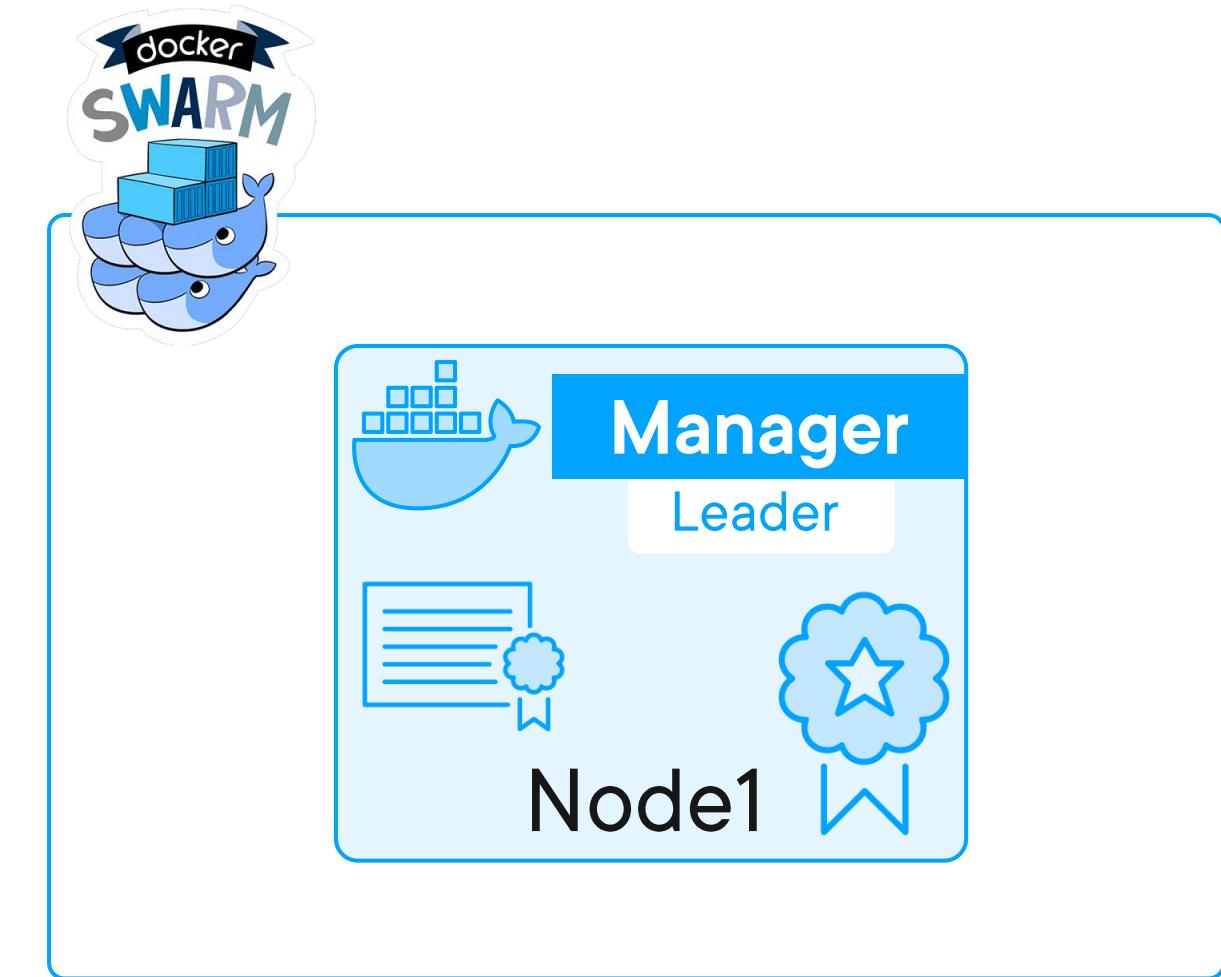
```
$ docker swarm init...
```

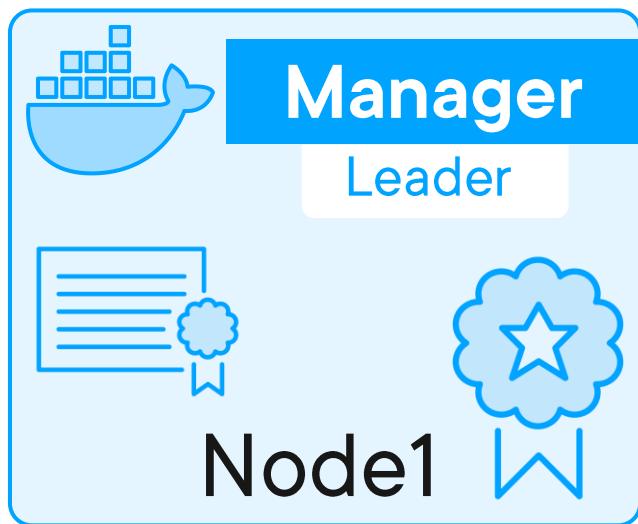
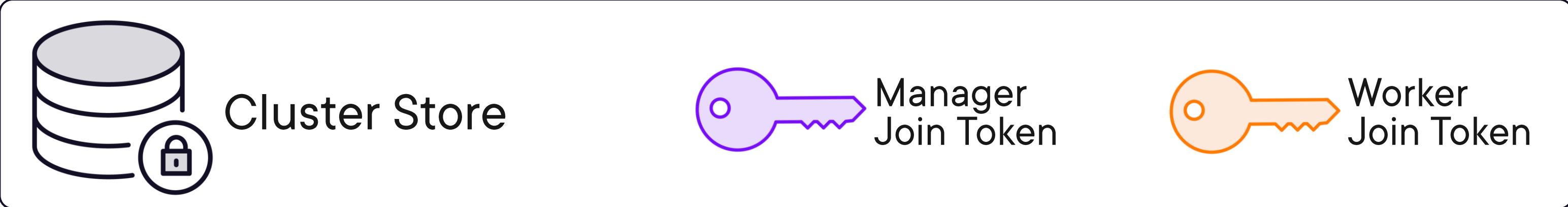


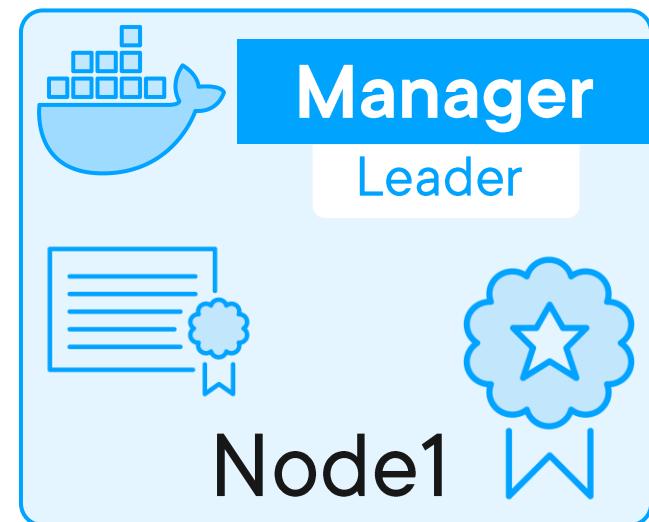
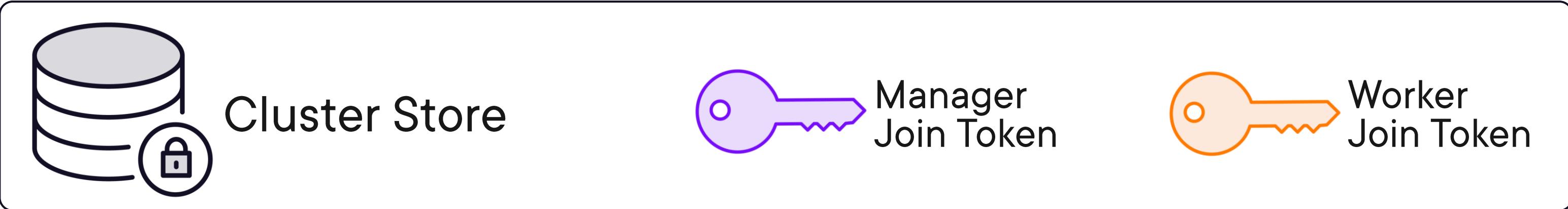
Node1

Single-engine  
mode

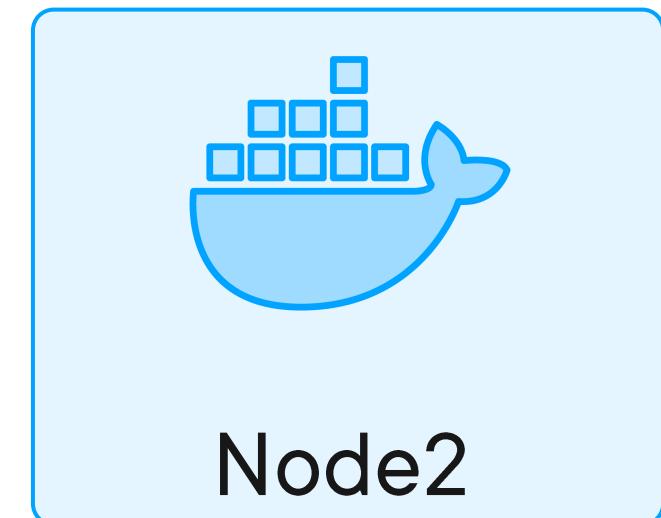


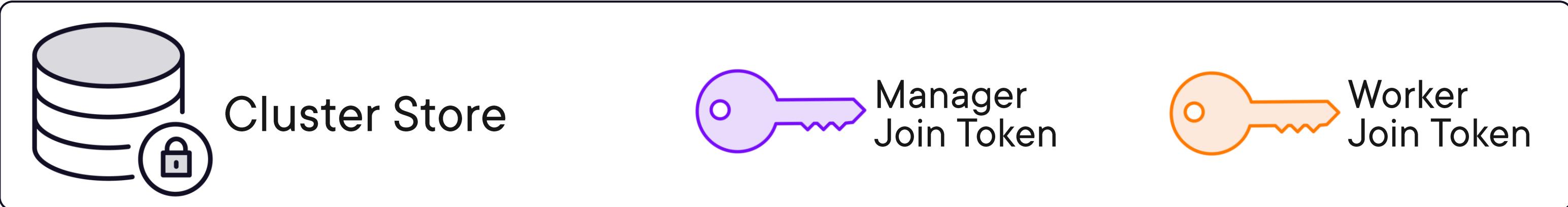


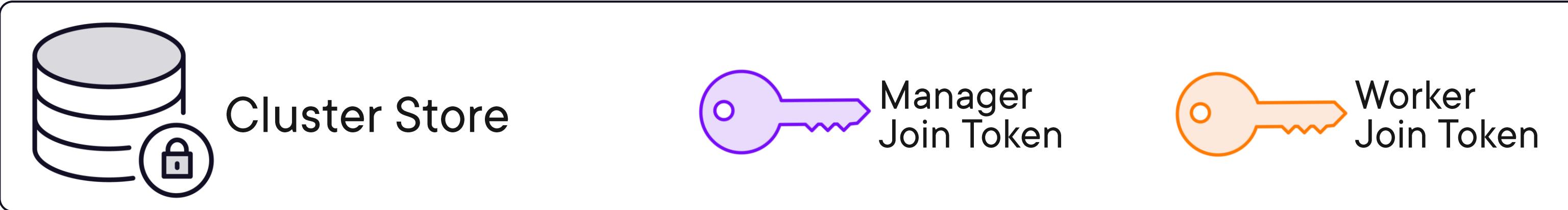


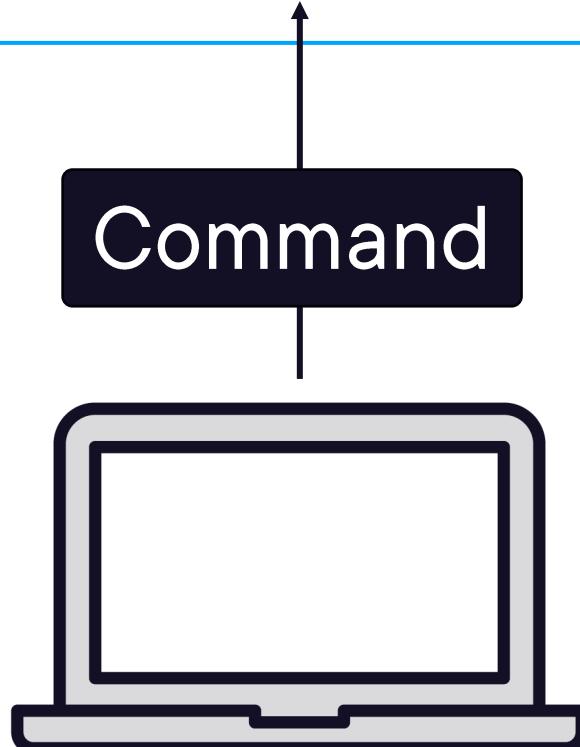
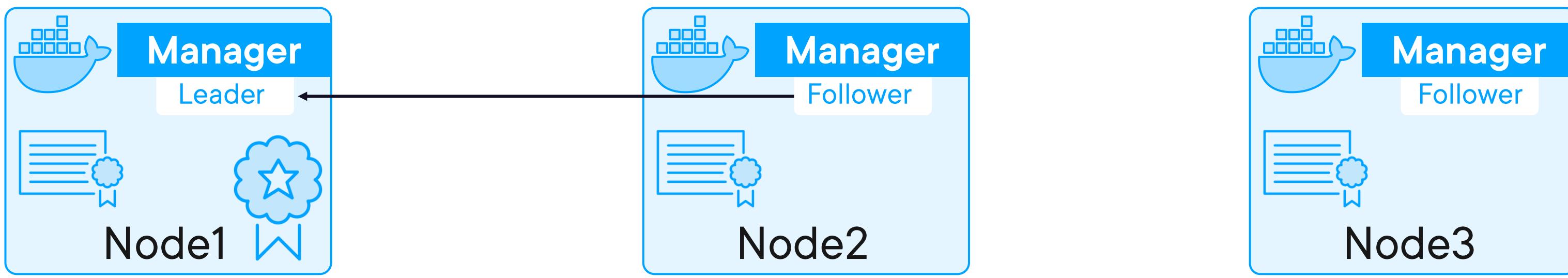
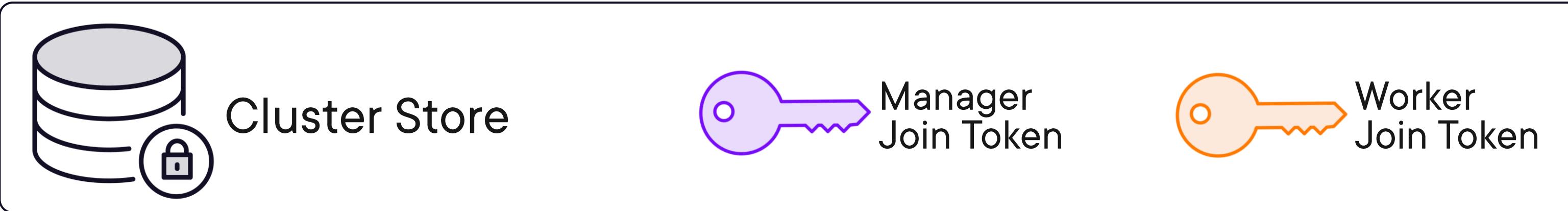


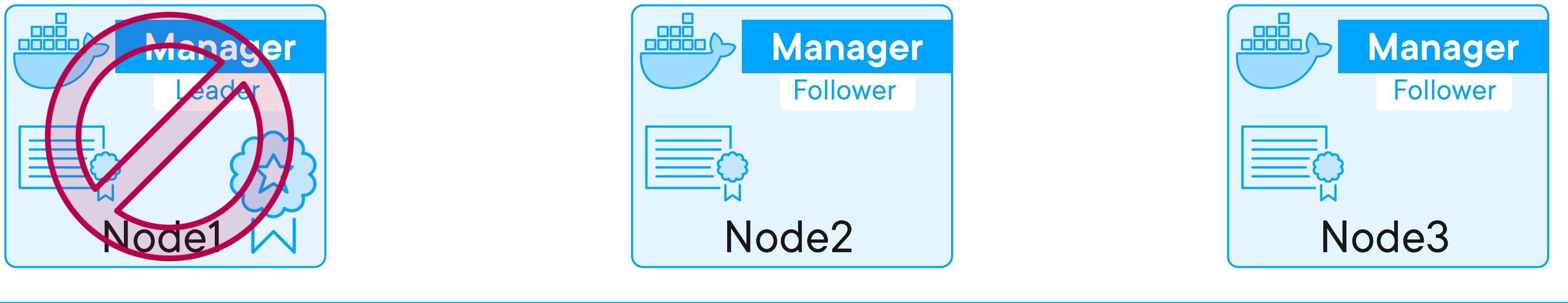
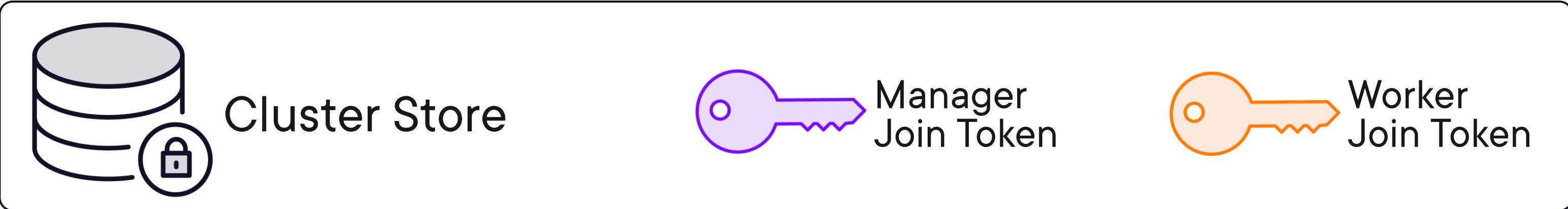
```
$ docker swarm init...
```





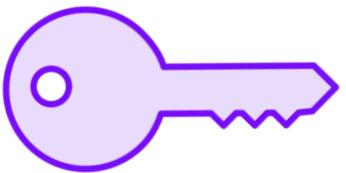




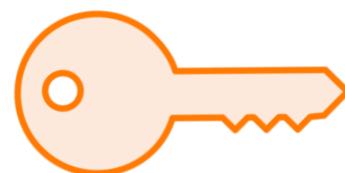




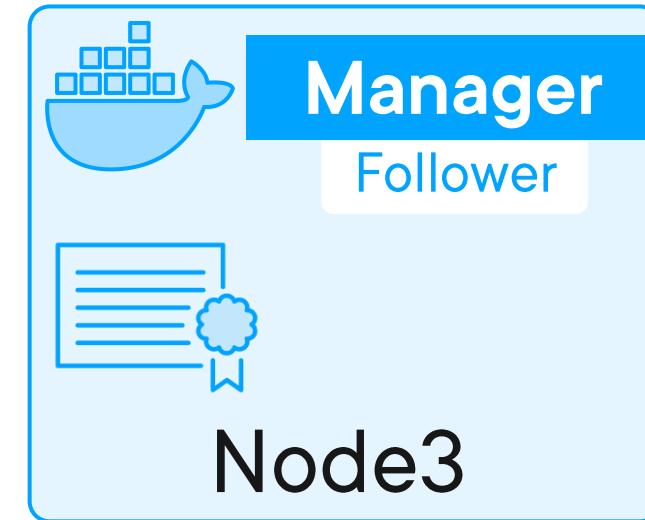
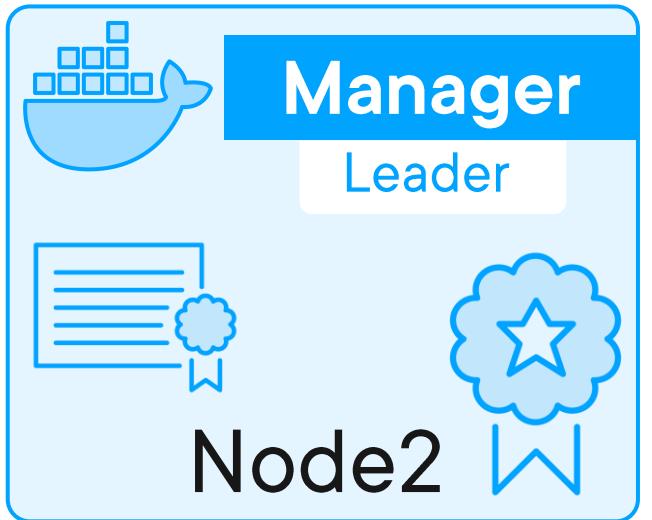
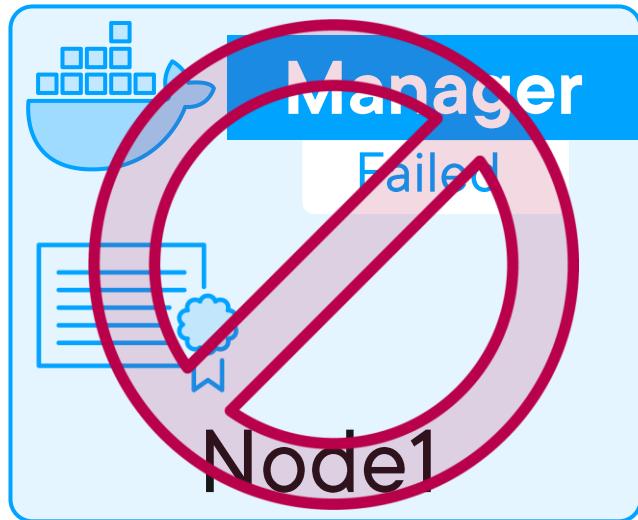
Cluster Store



Manager  
Join Token

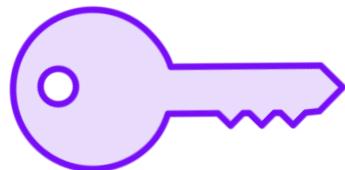


Worker  
Join Token

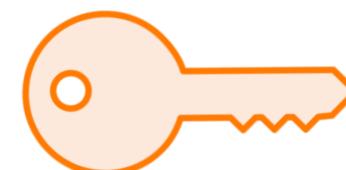




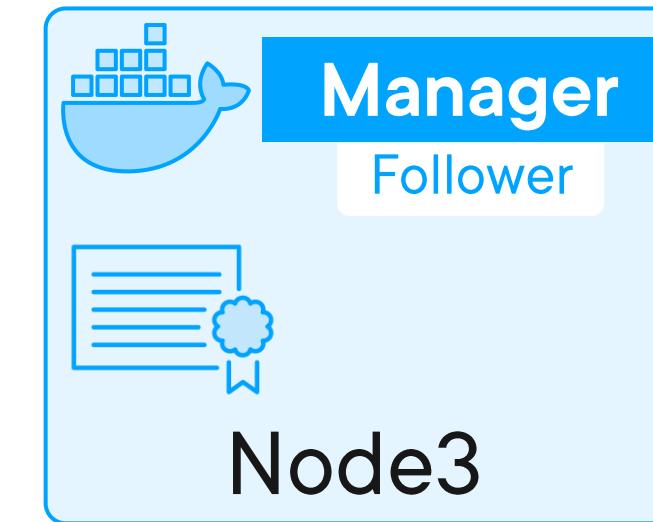
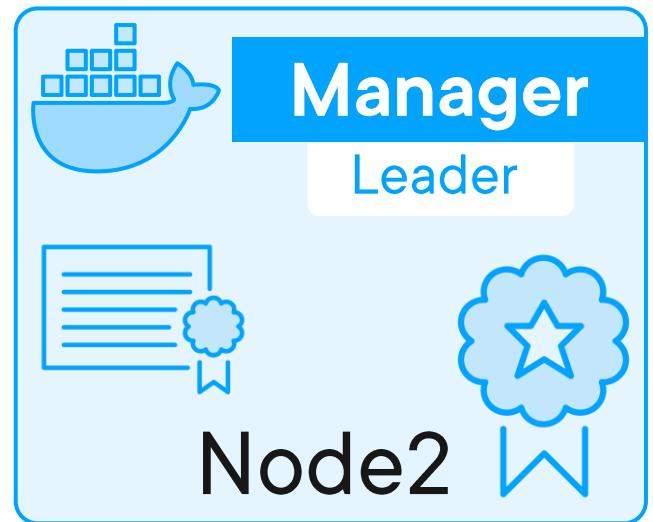
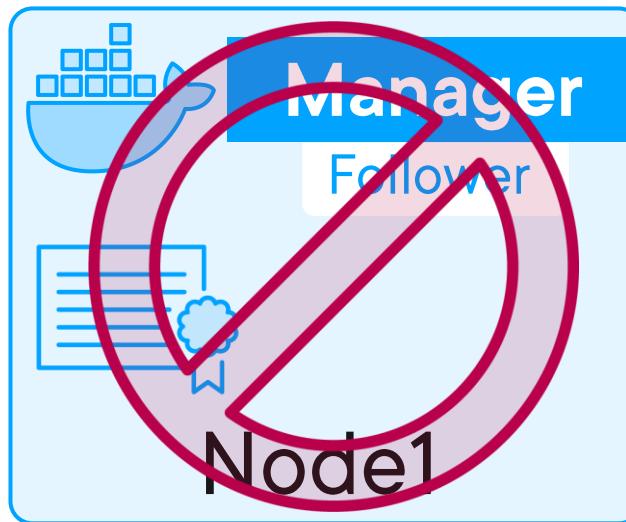
Cluster Store



Manager  
Join Token



Worker  
Join Token

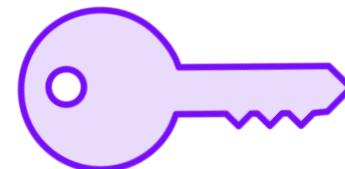




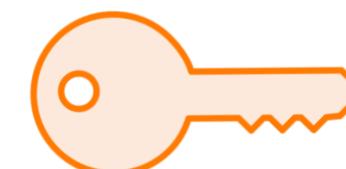
## Raft Consensus Group



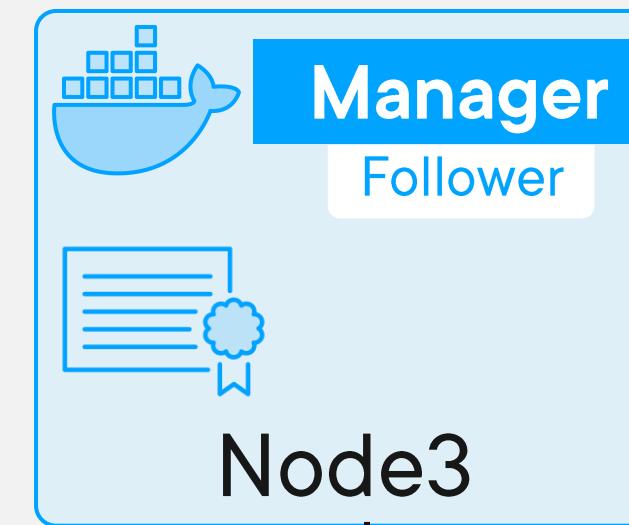
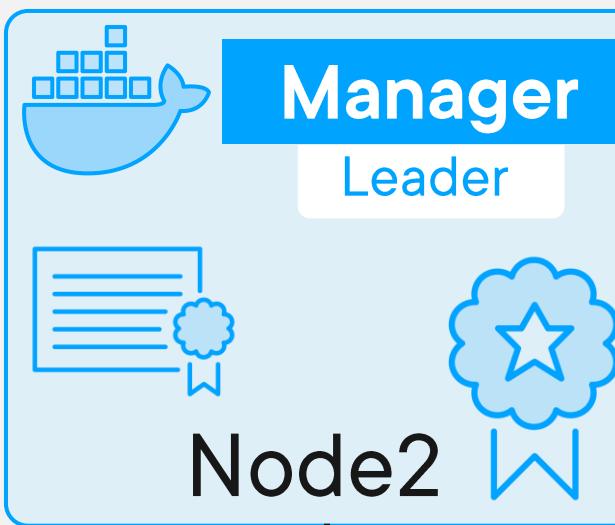
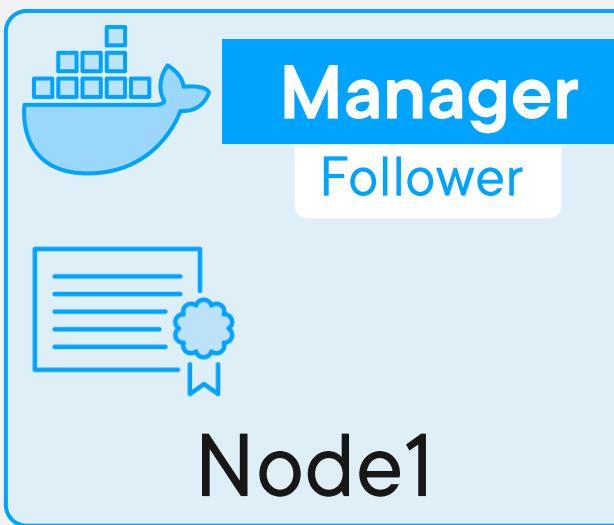
Cluster Store



Manager  
Join Token



Worker  
Join Token



Fast & reliable

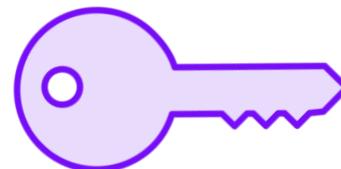




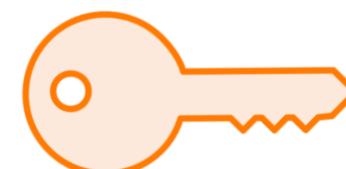
## Raft Consensus Group



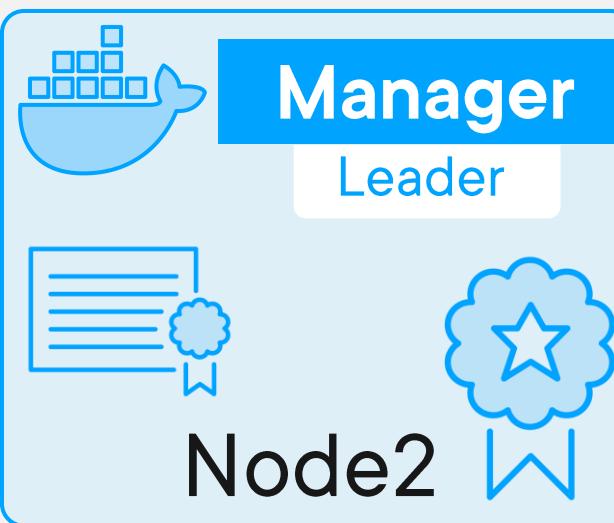
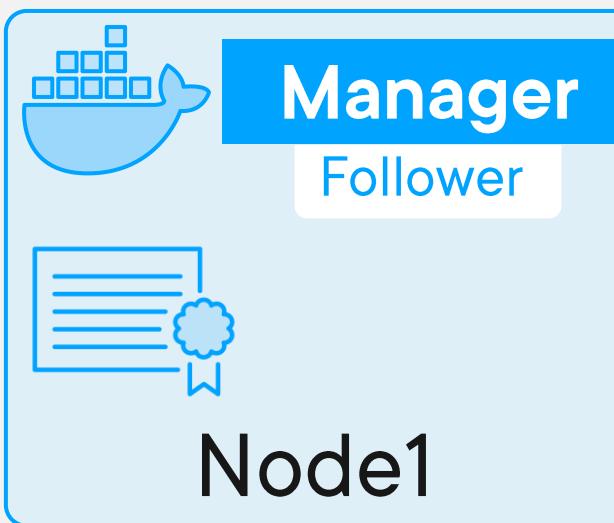
Cluster Store



Manager  
Join Token



Worker  
Join Token

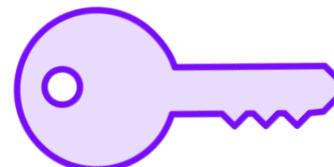




## Raft Concensus Group



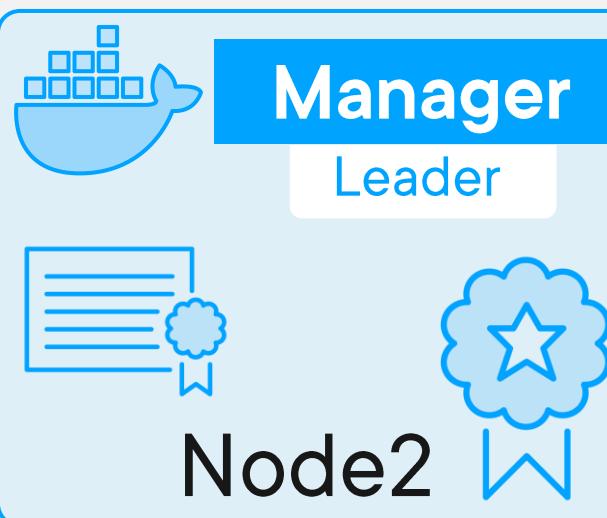
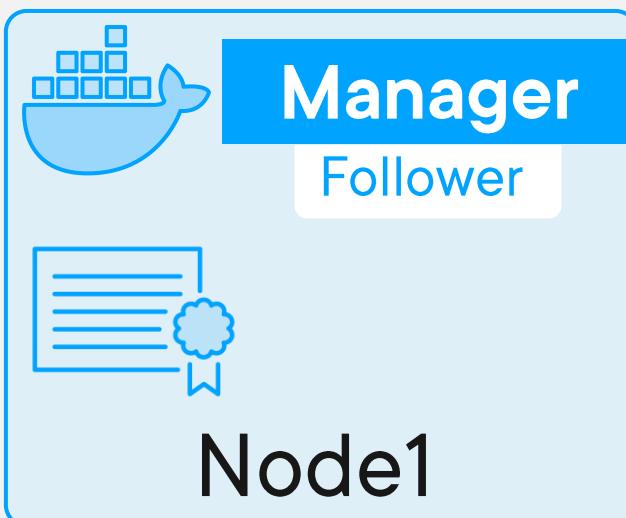
Cluster Store



Manager  
Join Token



Worker  
Join Token

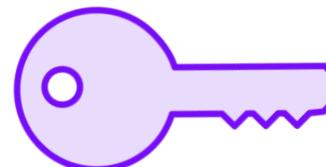




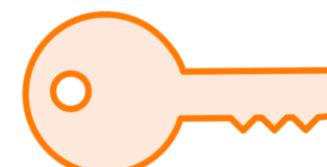
## Raft Consensus Group



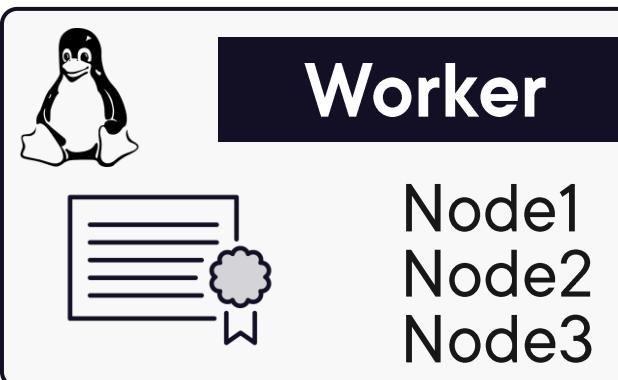
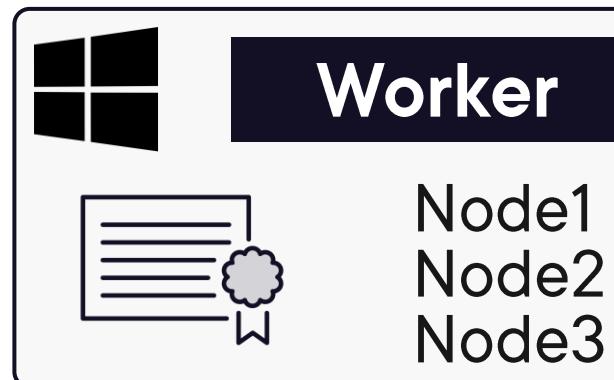
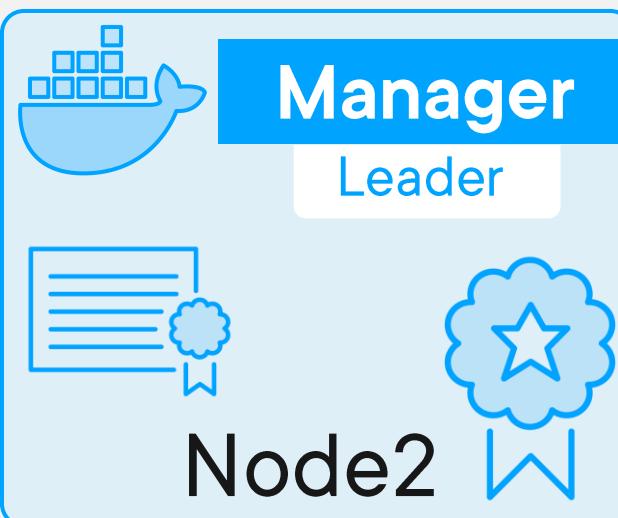
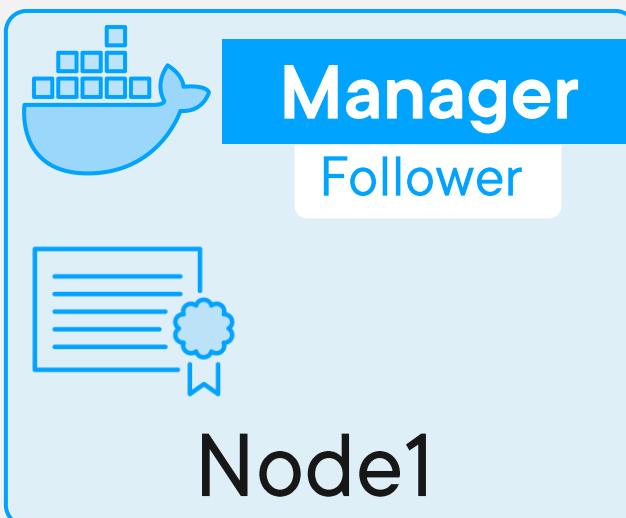
Cluster Store



Manager  
Join Token



Worker  
Join Token



**Up Next:**

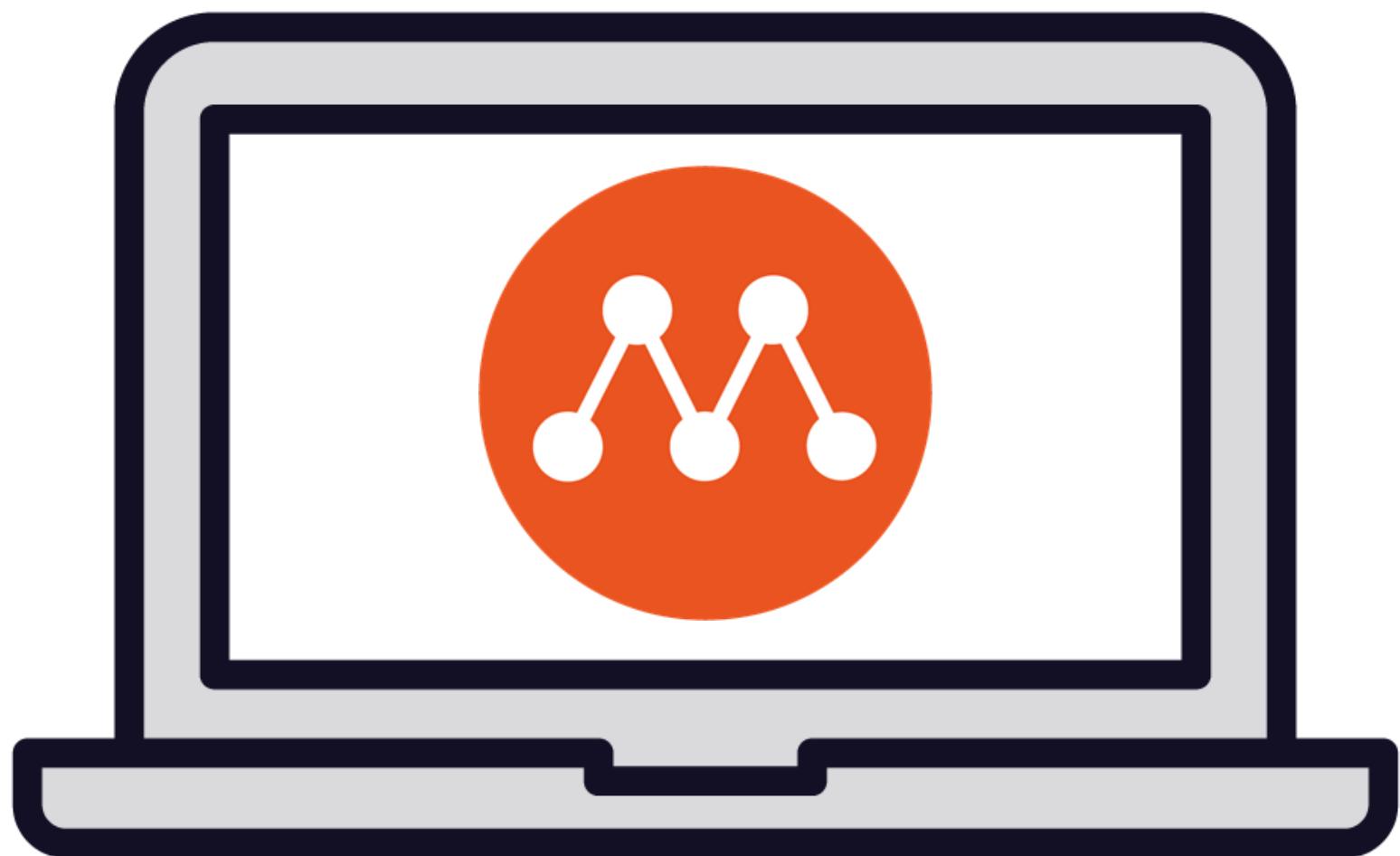
# **Build a Secure Swarm**

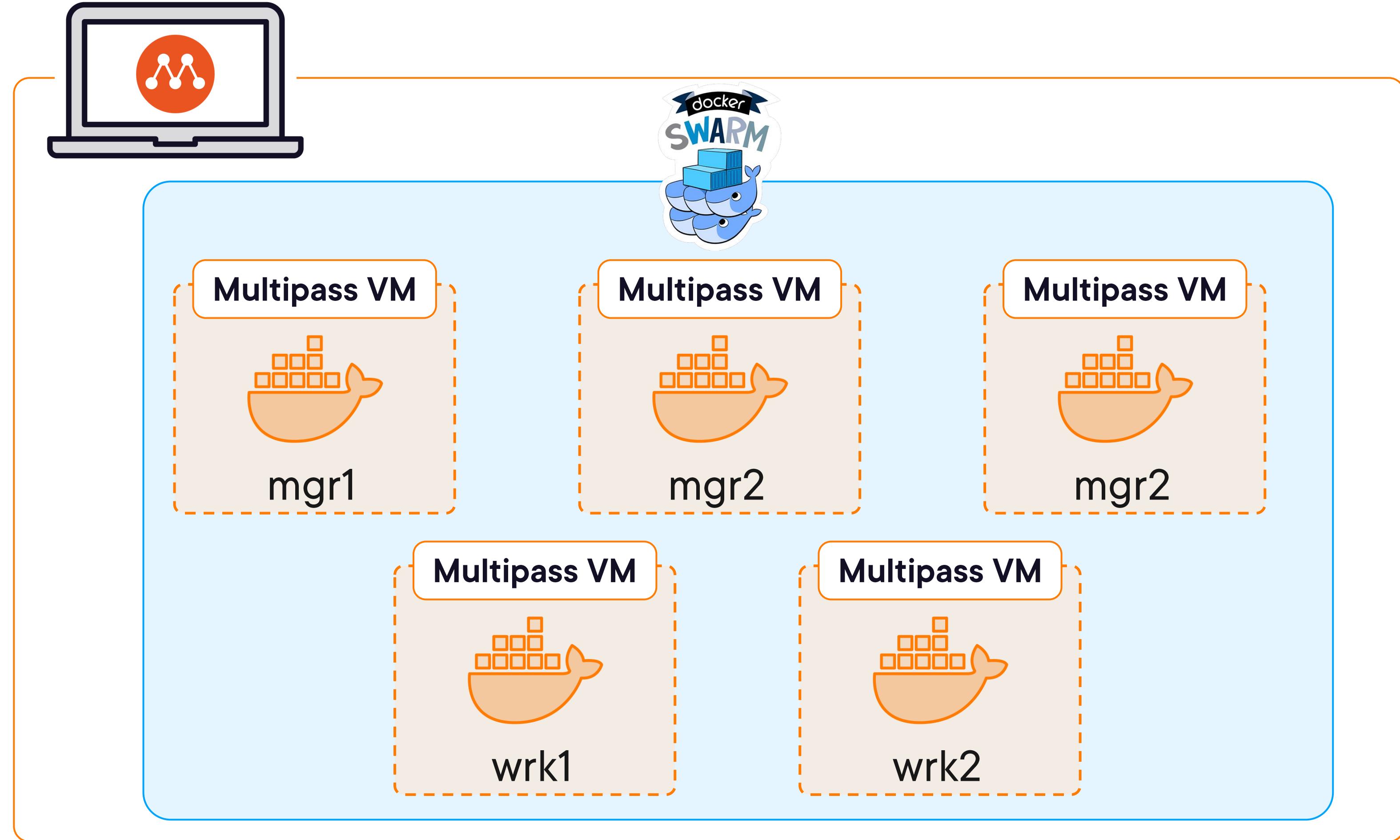
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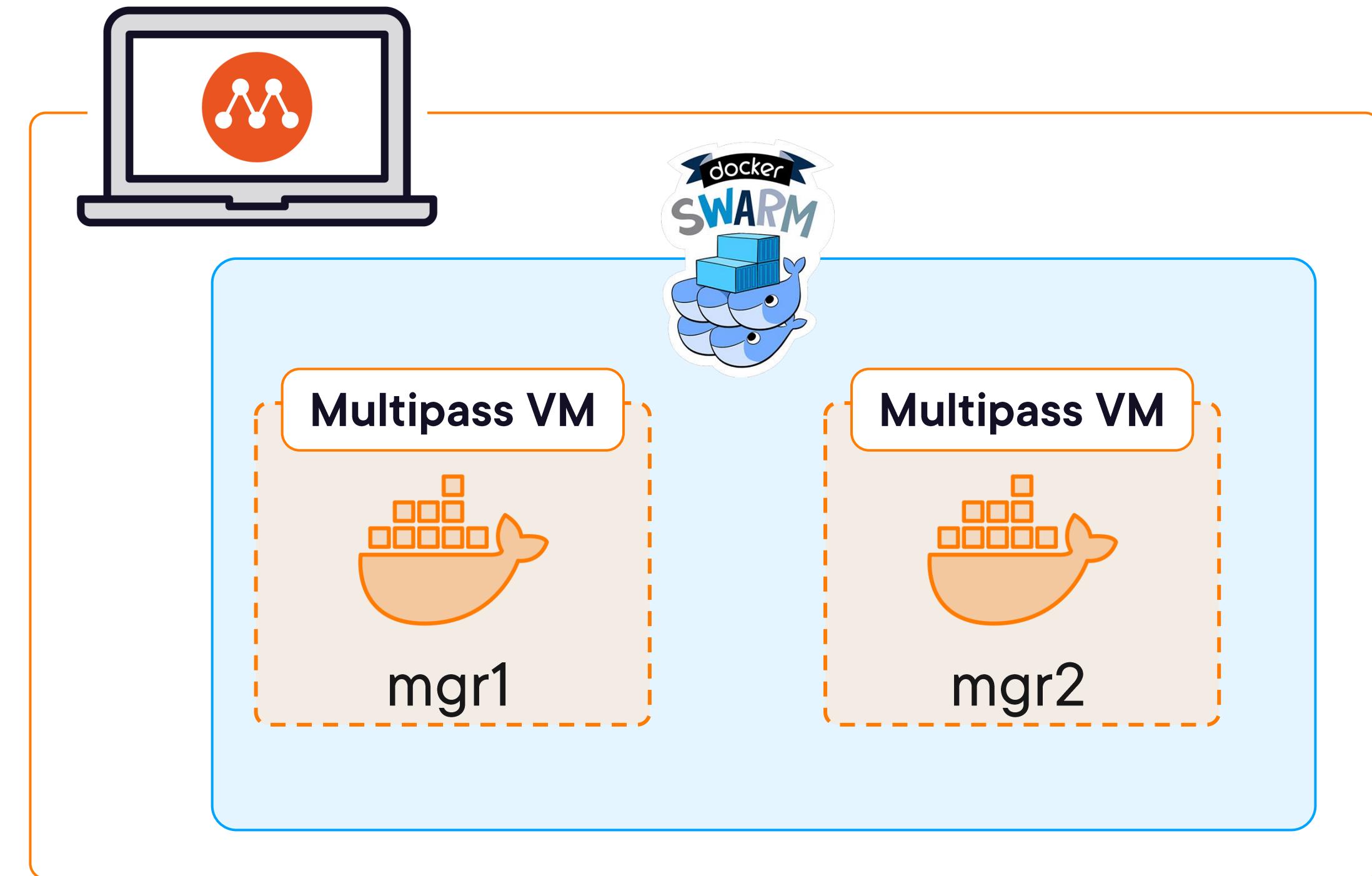


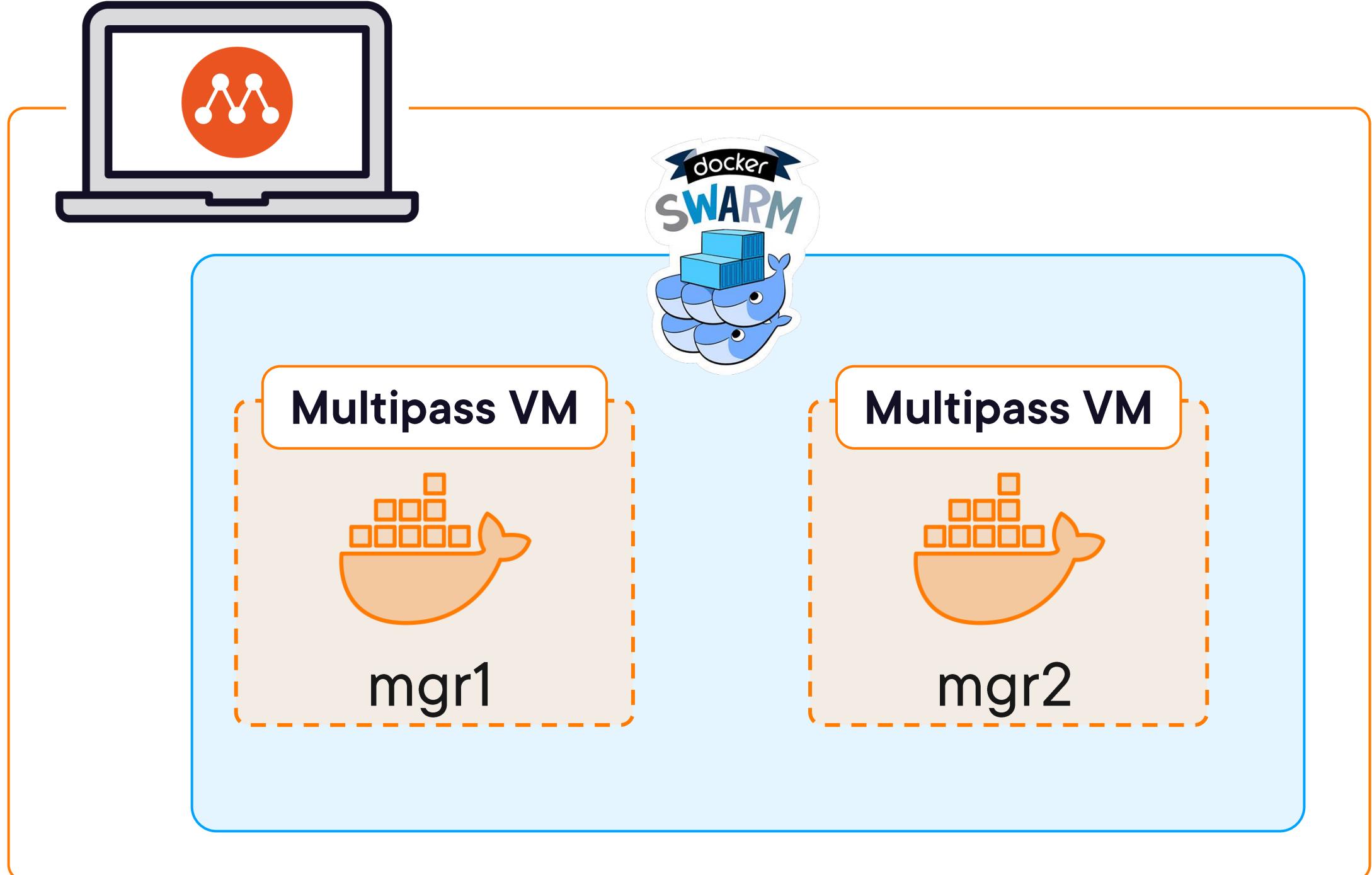
# Build a Secure Swarm



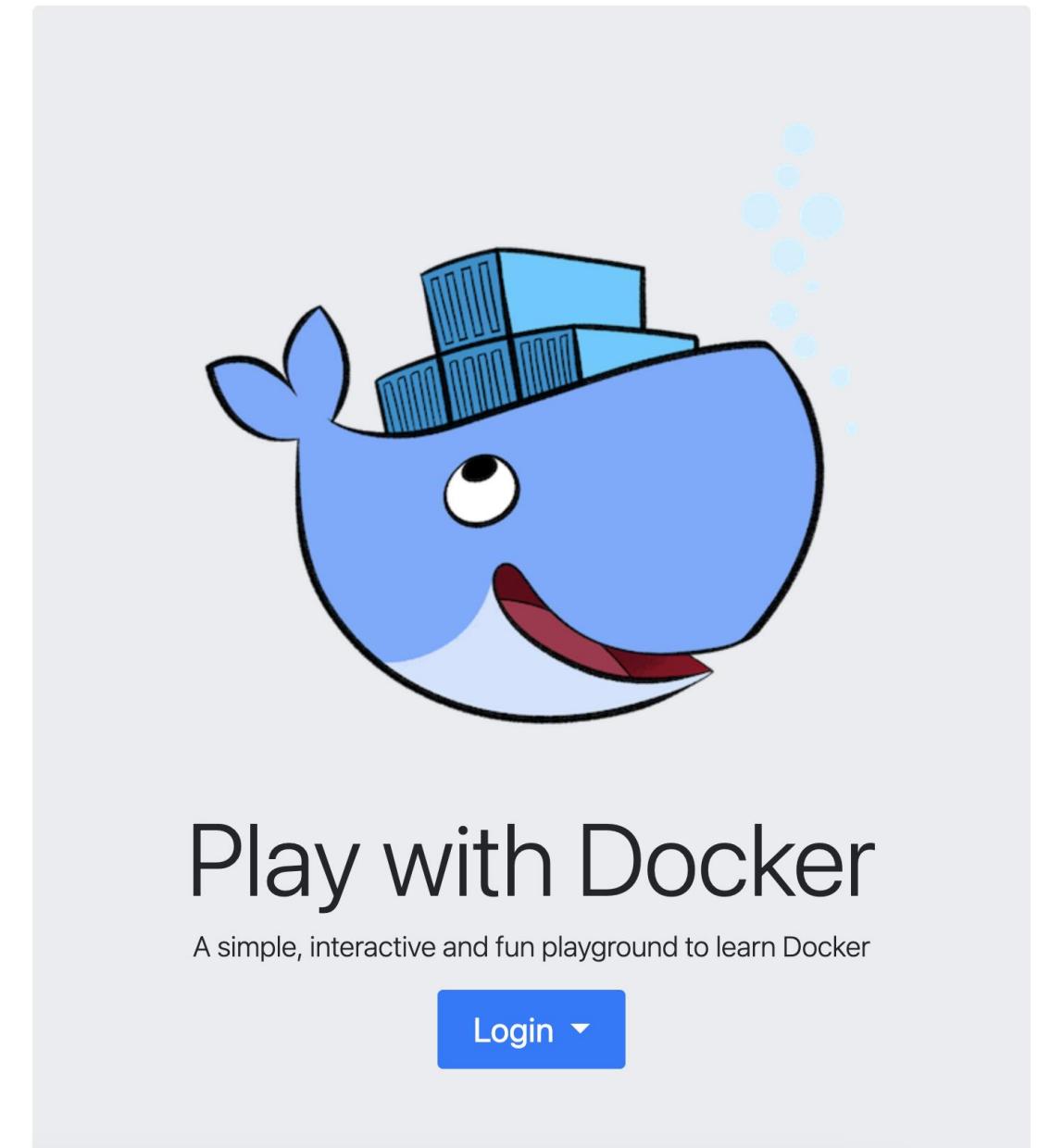








OR



**Up Next:**

# **Orchestration Primer**

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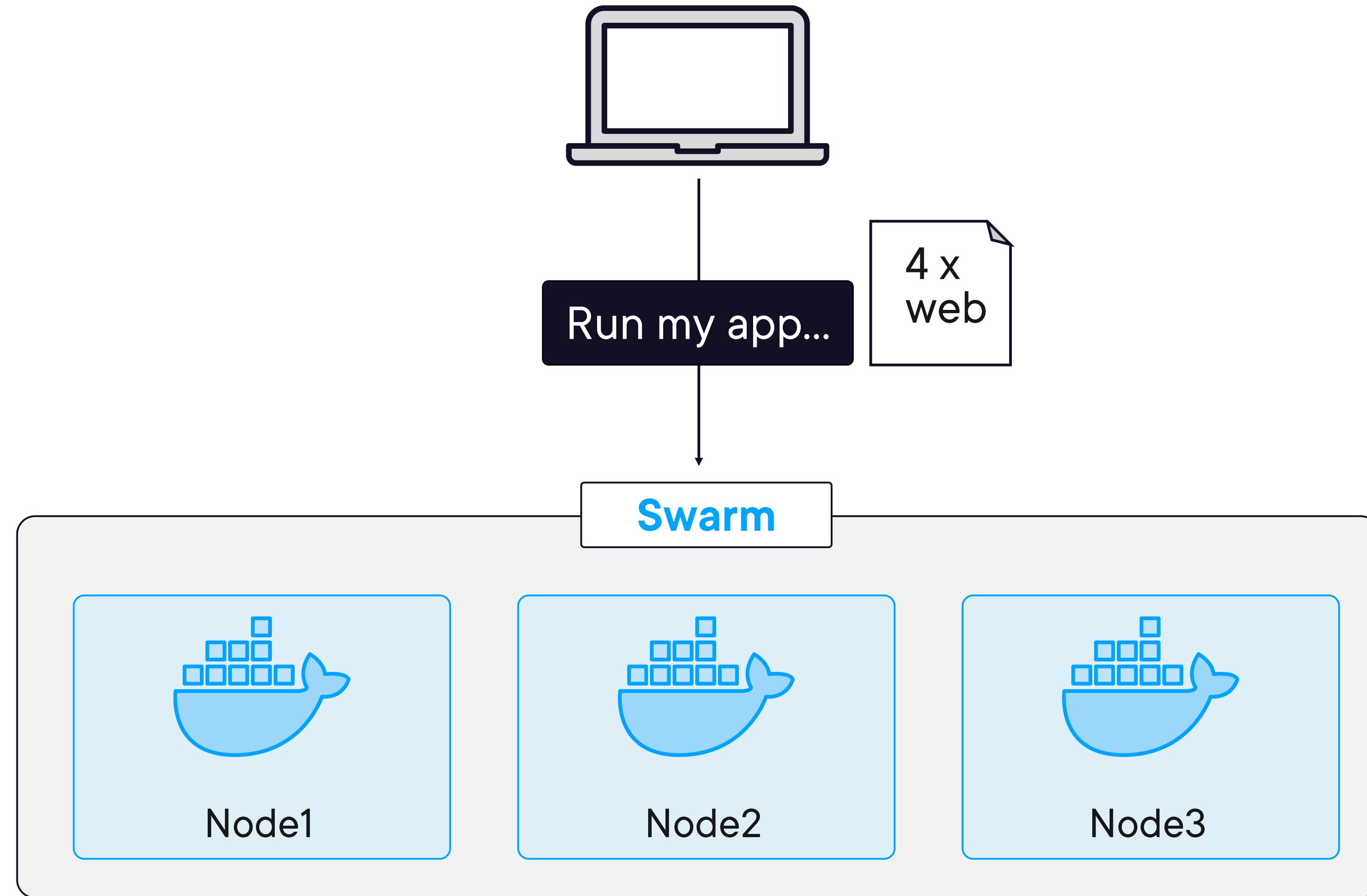


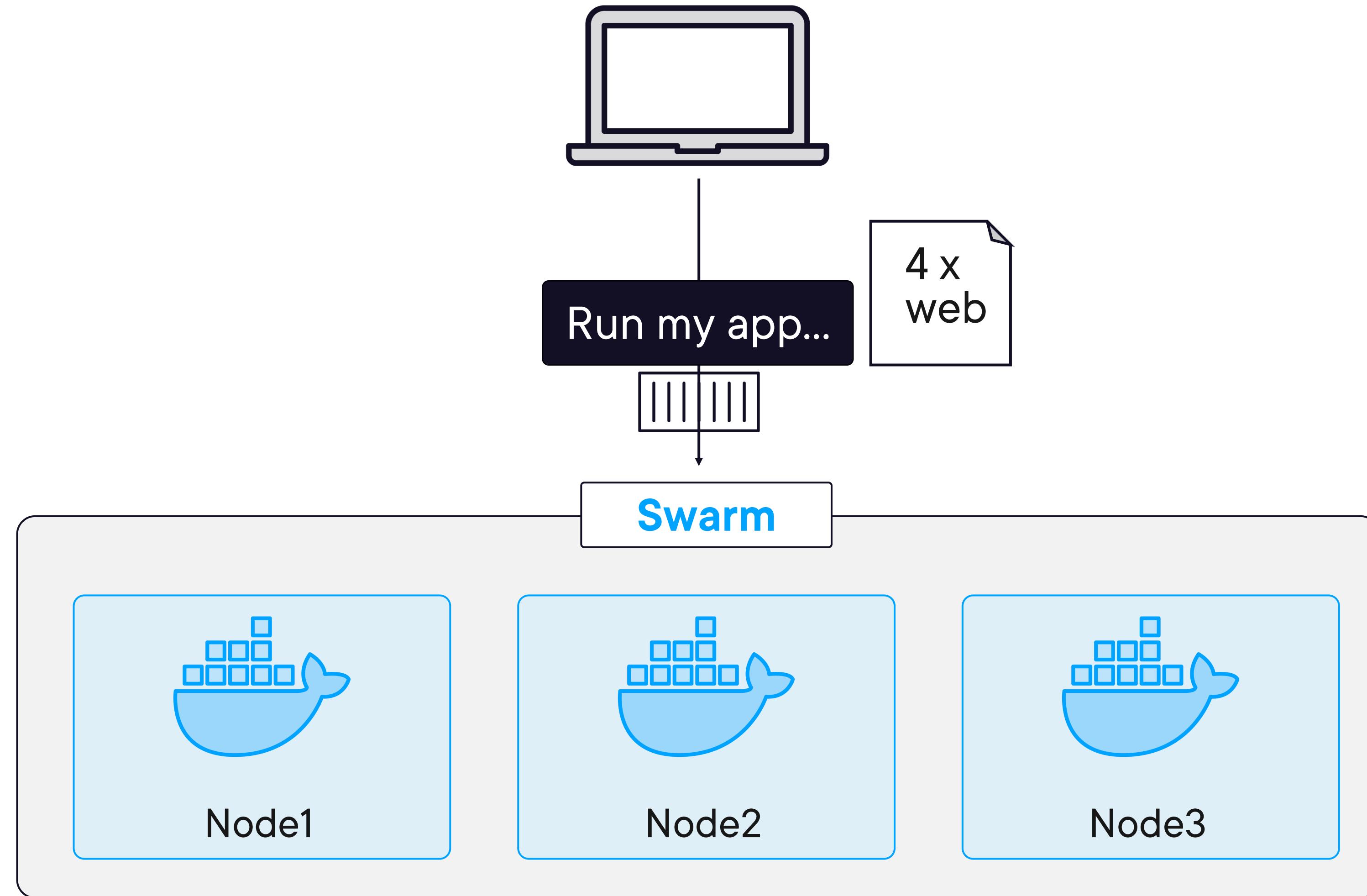
# Orchestration Primer

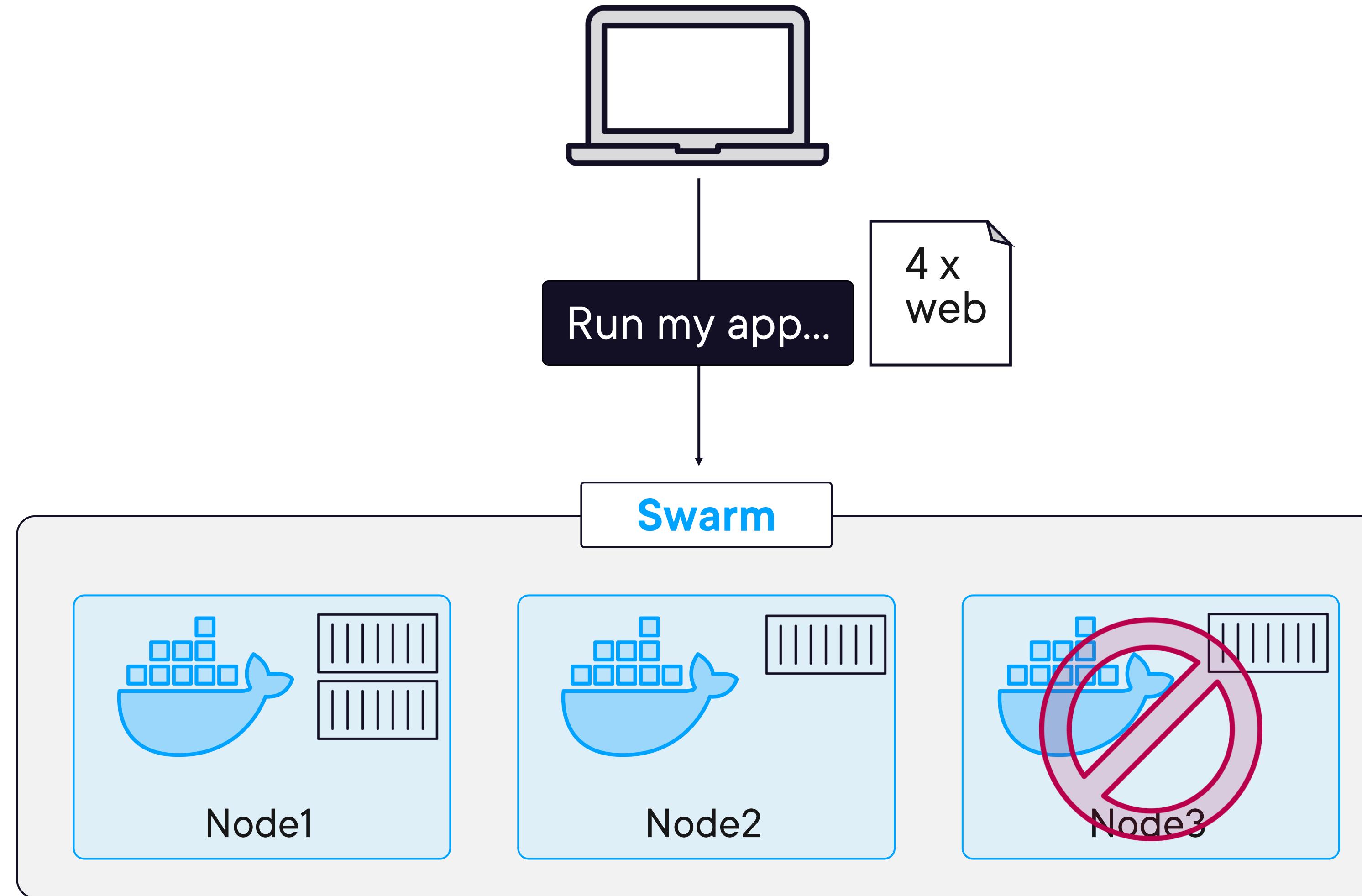


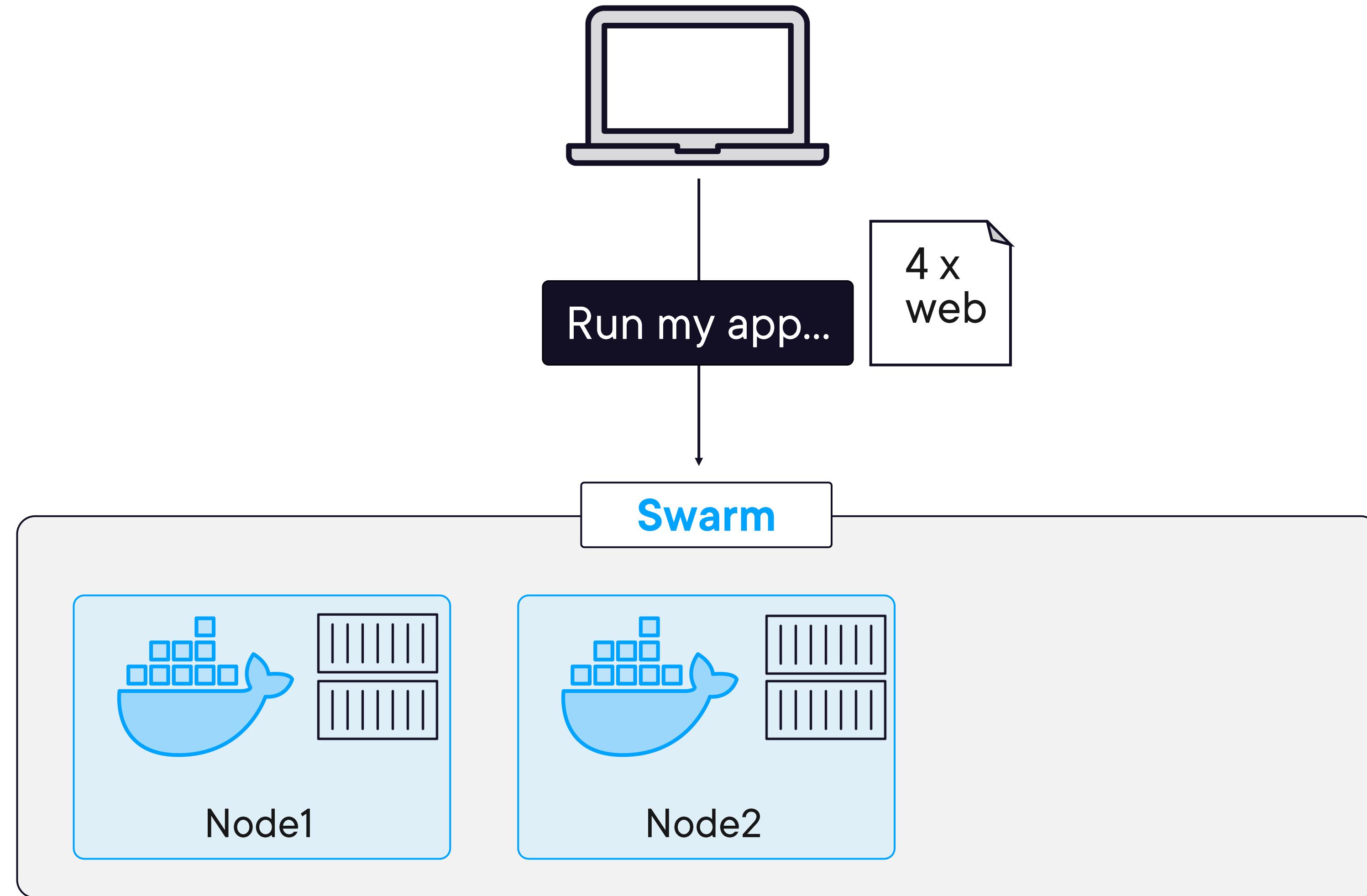
# **Doing stuff at scale is hard!**











**Up Next:**

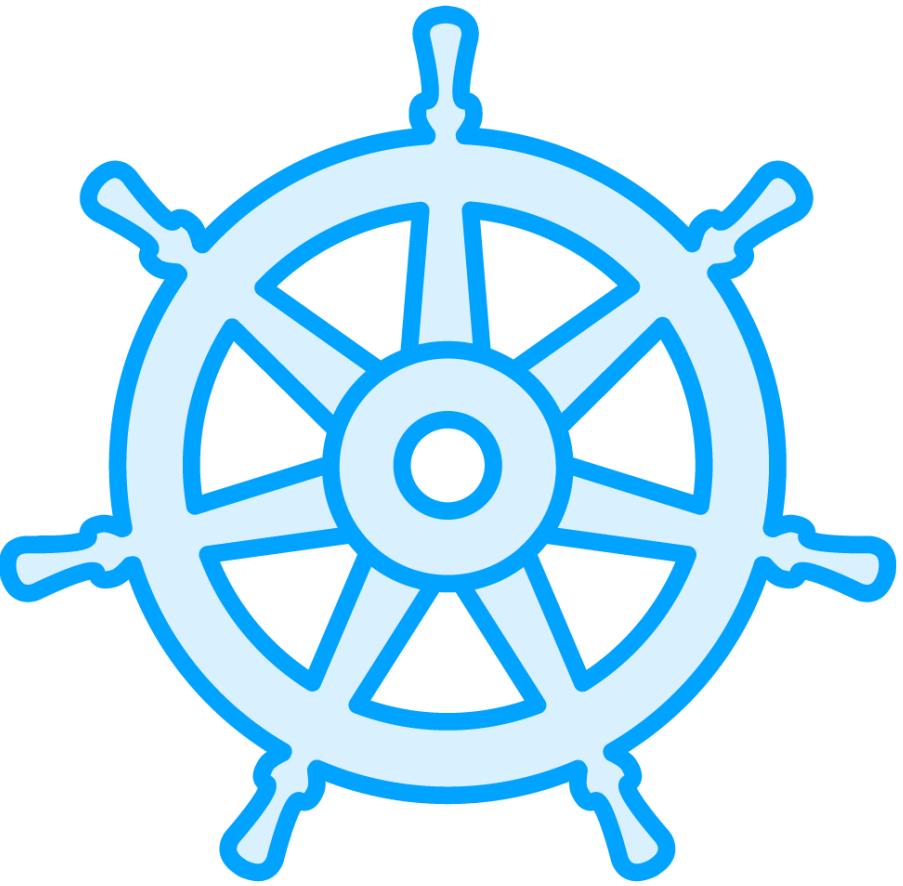
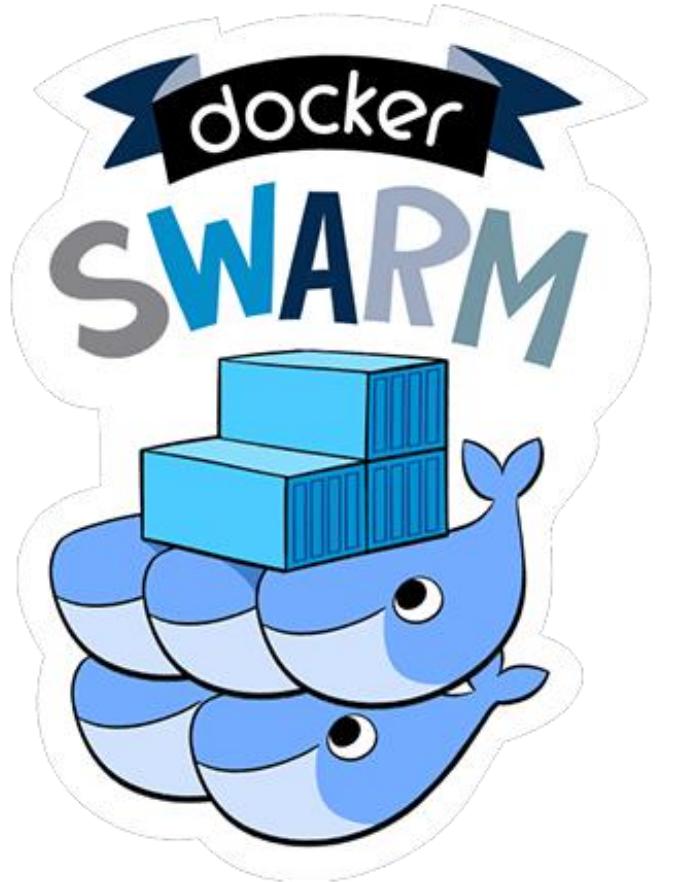
# **Recap**

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# Recap





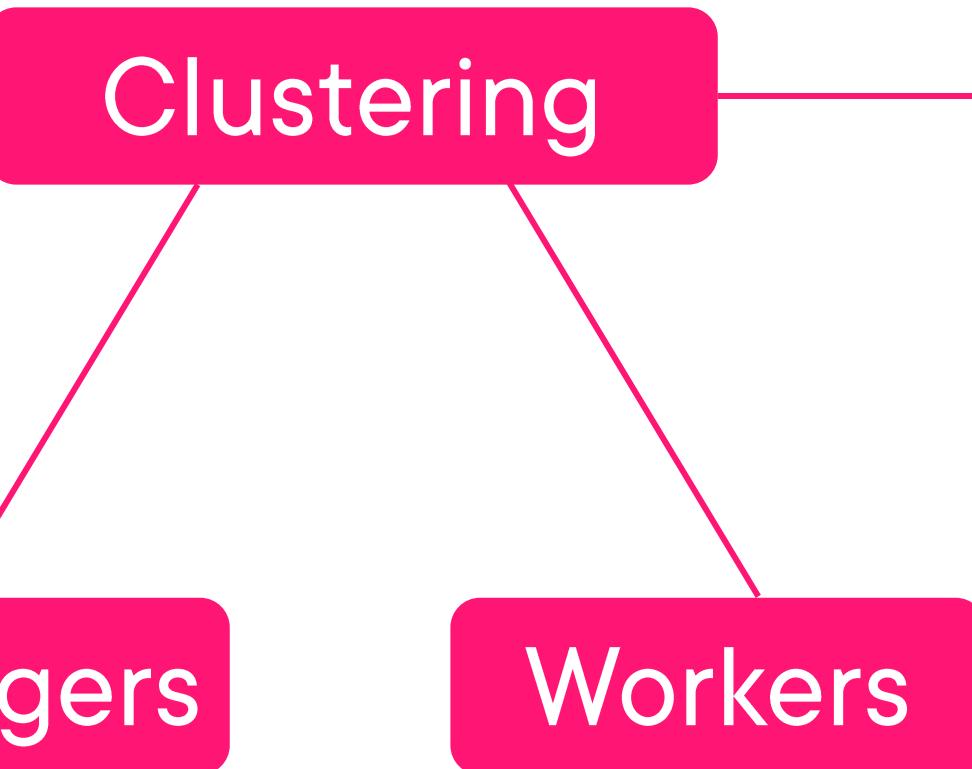
**Simple**

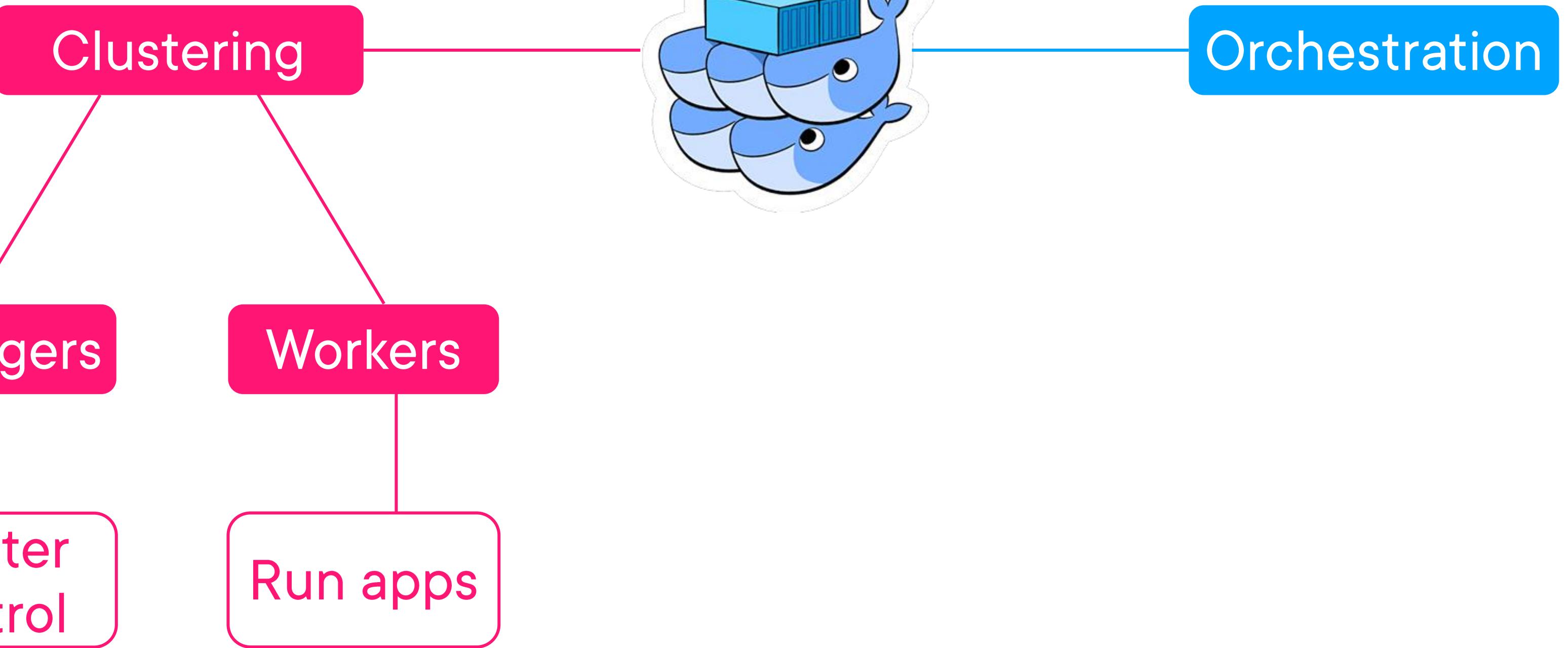
**Does Less**

**Hard**

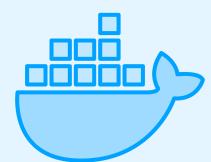
**Does More**



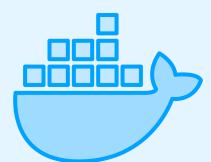




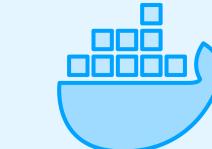
```
$ docker swarm init...
```



Node1



Node2



Node3

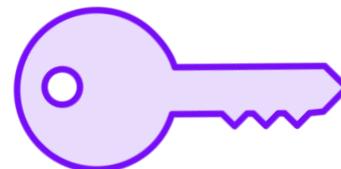




## Raft Consensus Group



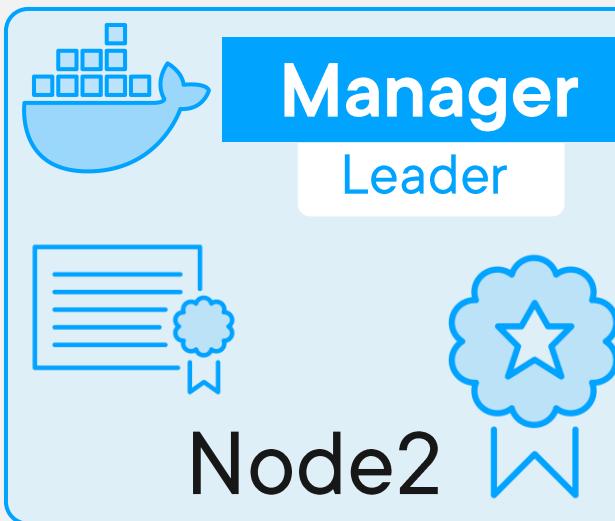
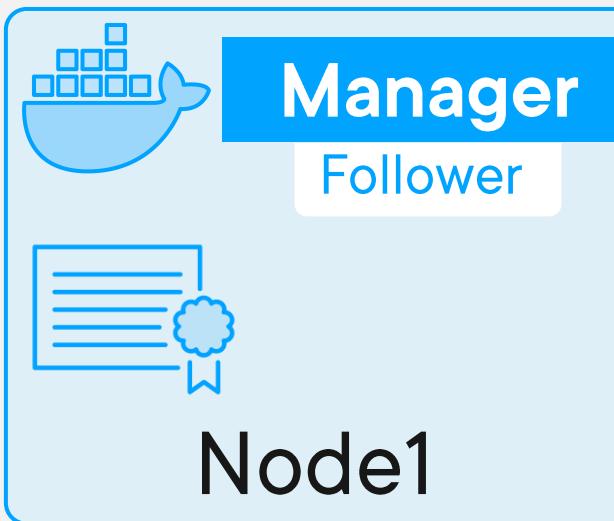
Cluster Store



Manager  
Join Token



Worker  
Join Token



**Up Next:**

# **Container Networking**

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