

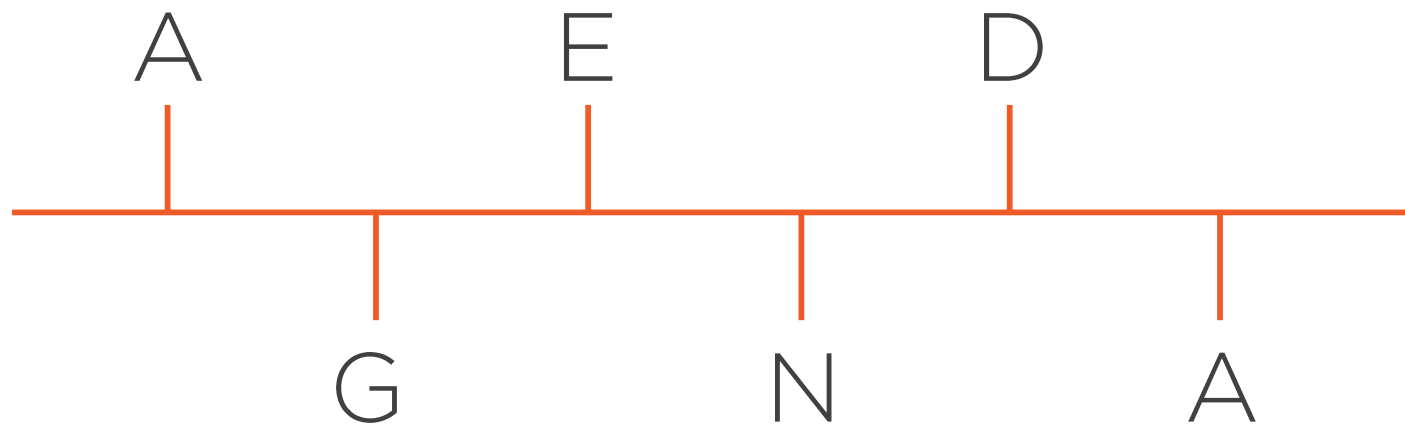
Network Services




Nigel Poulton

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AGENDA

- 
- Service Discovery
 - Port-based Routing with the Routing Mesh
 - App-aware Routing with the HTTP Routing Mesh



Service Discovery



Modern Apps

Made up of multiple smaller services

- Sometimes **loads!!**

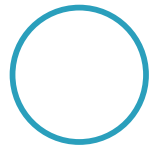


Modern Apps

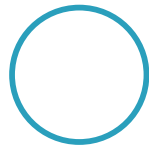
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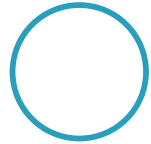
“Microservices”



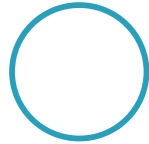
HTTPS



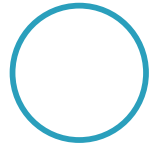
HTTPS



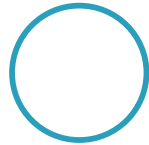
Search



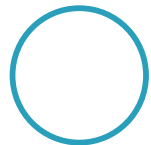
Auth



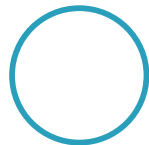
K/V store



MySQL



Log



Load
balancer



Modern Apps

Made up of multiple smaller services

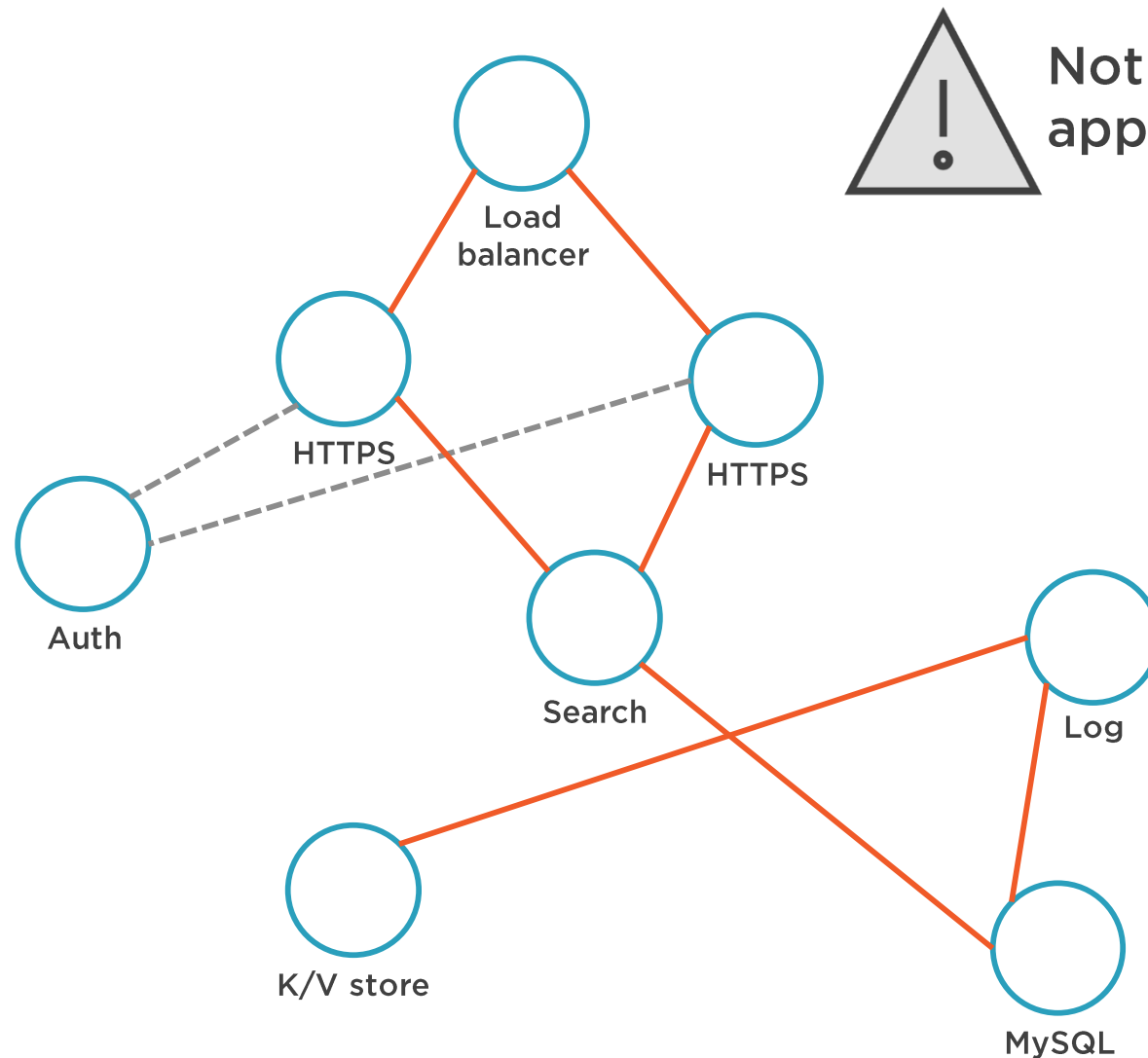
- Sometimes **loads!!**

“Microservices”

Service discovery is **massively important**

Service discovery is **automatic in Docker**

- For services
- For containers created with `--name` or `--alias`



**Not a real
app architecture!**



Made up of multiple smaller services

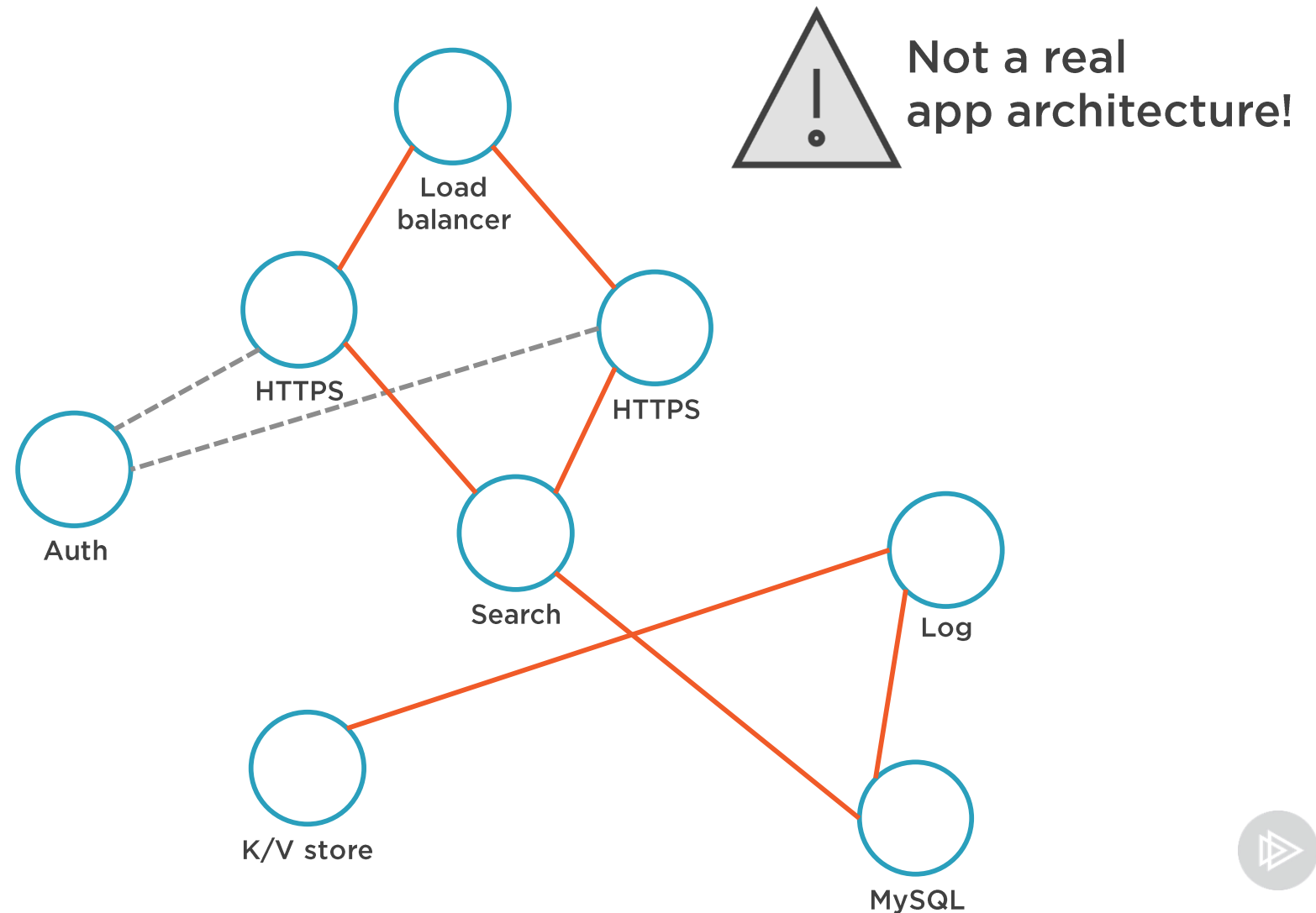
- Sometimes **loads!!**

“Microservices”

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DNS Service Discovery in Docker

Made up of multiple smaller services

- Sometimes **loads!!**

“Microservices”

Service discovery is
massively important

Service discovery is
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DNS Service Discovery in Docker

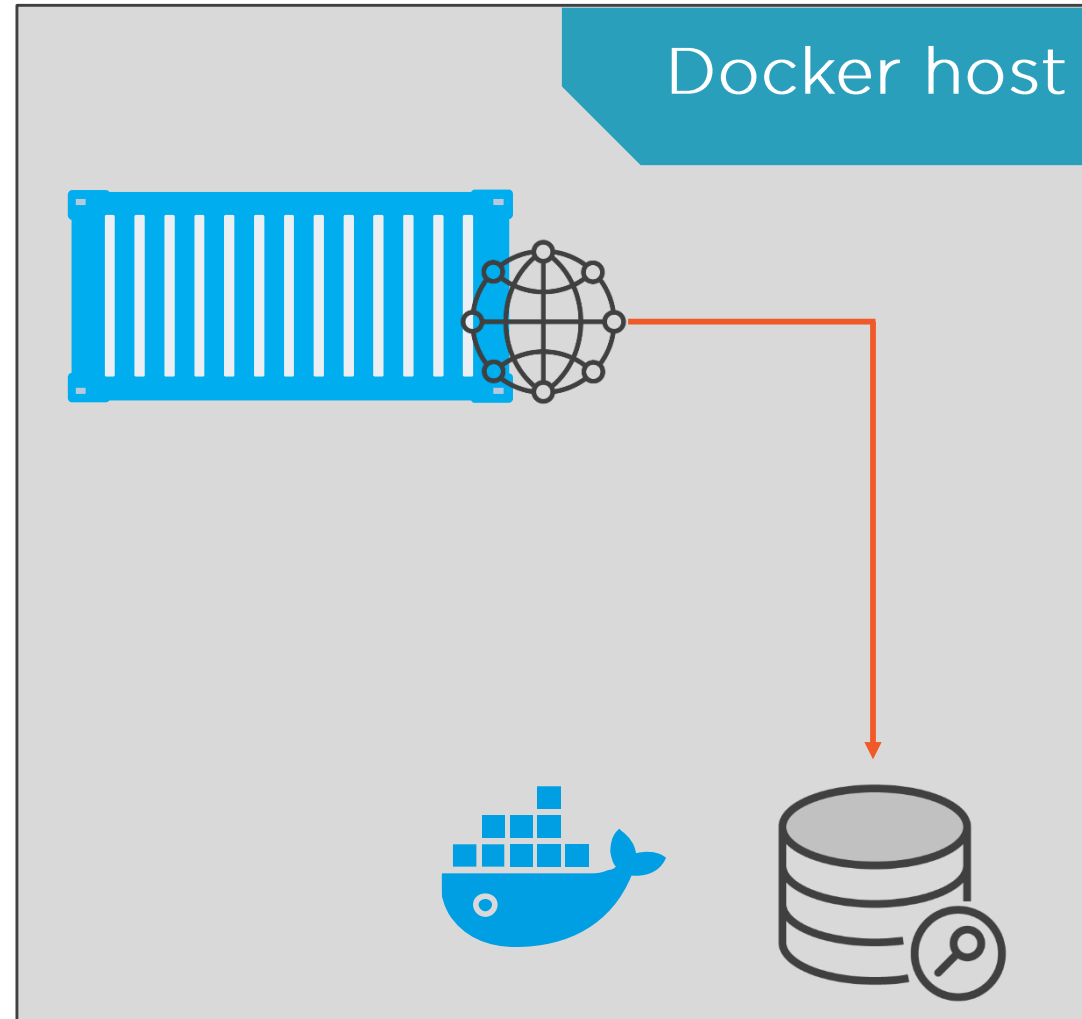
Service discovery is **automatic in Docker**

- For services
- For containers created with `--name` or `--alias`

Every container gets a small DNS resolver

- Listens on 127.0.0.11:53
- Forwards requests to DNS server on Docker host

Network-scoped



DNS Service Discovery in Docker

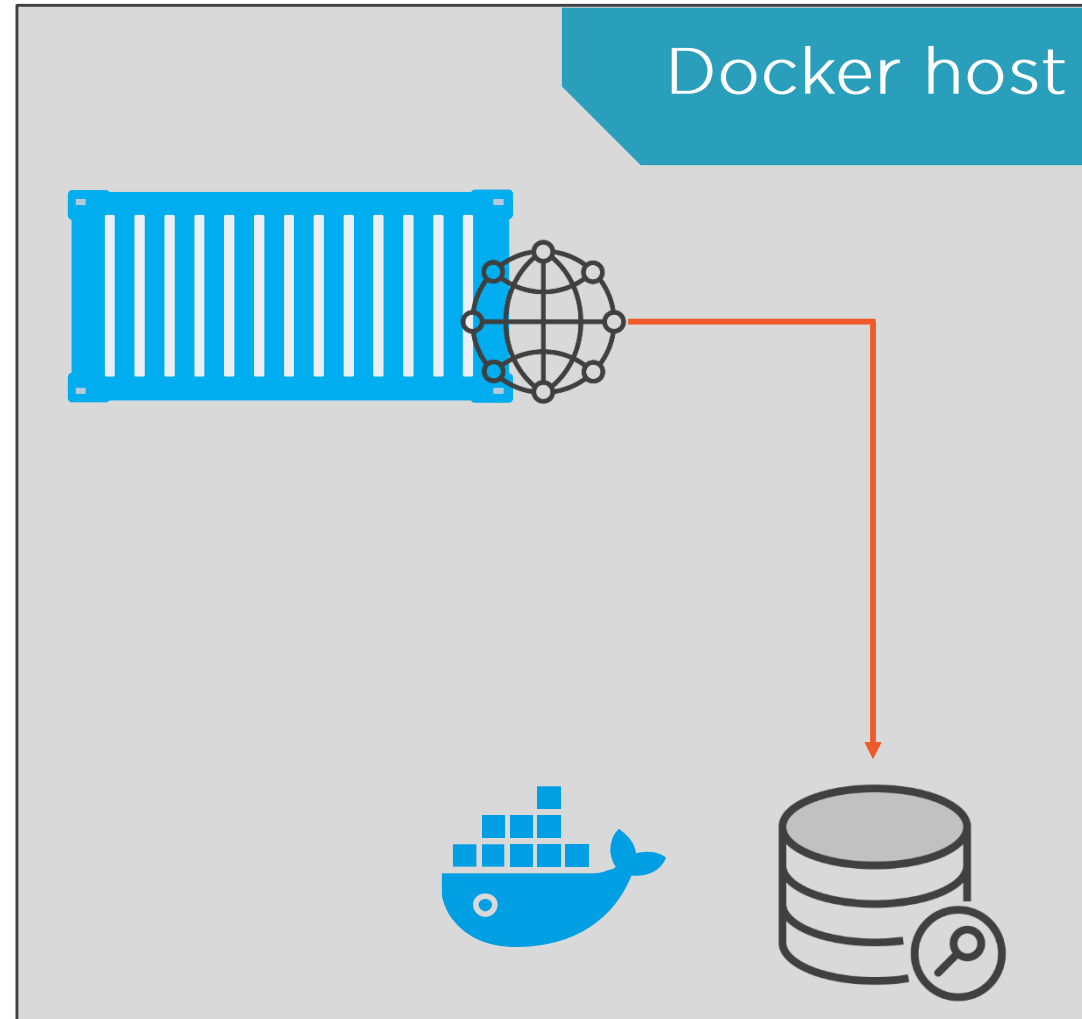
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Network-scoped Discovery

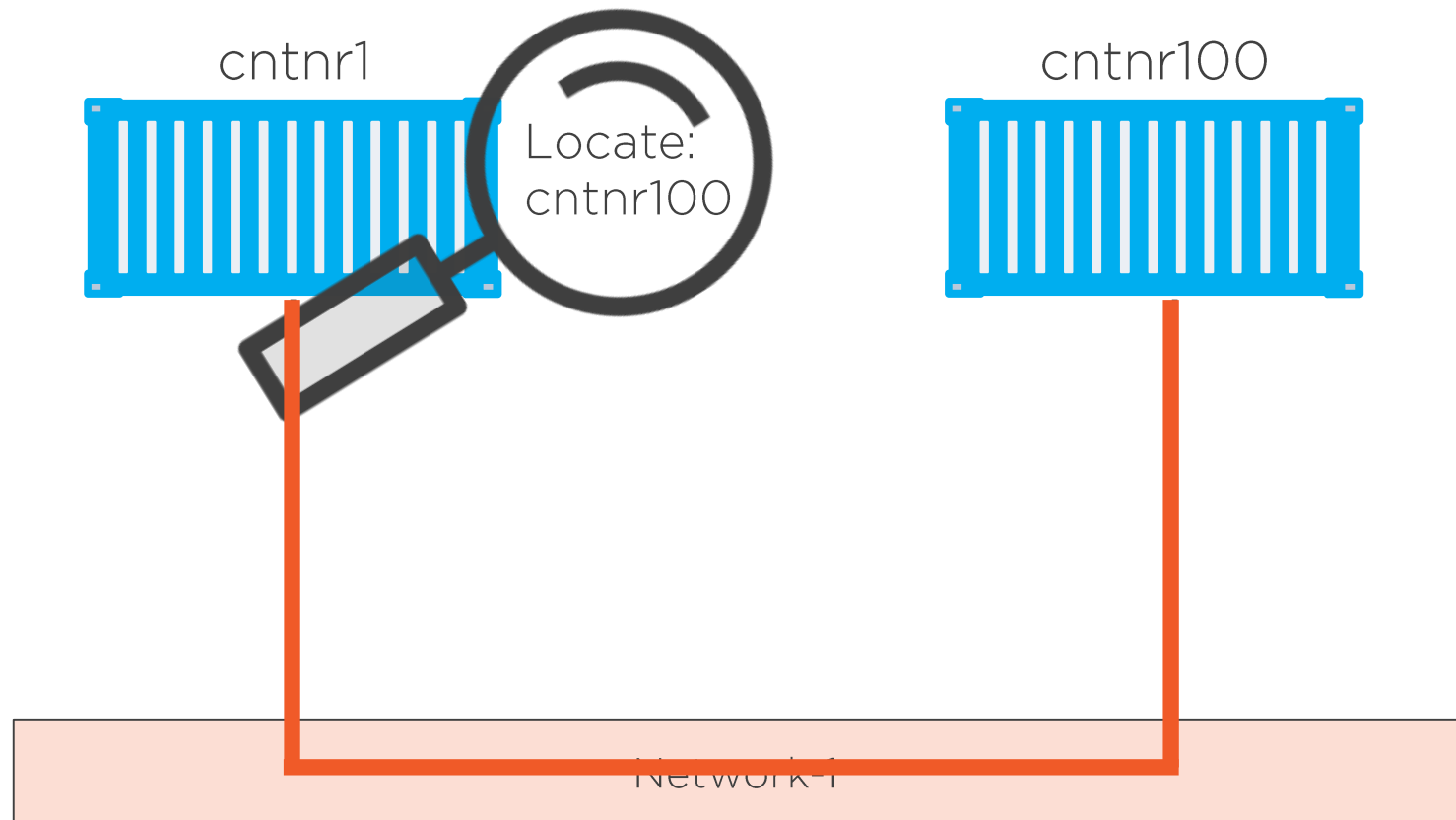
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Network-scoped Discovery

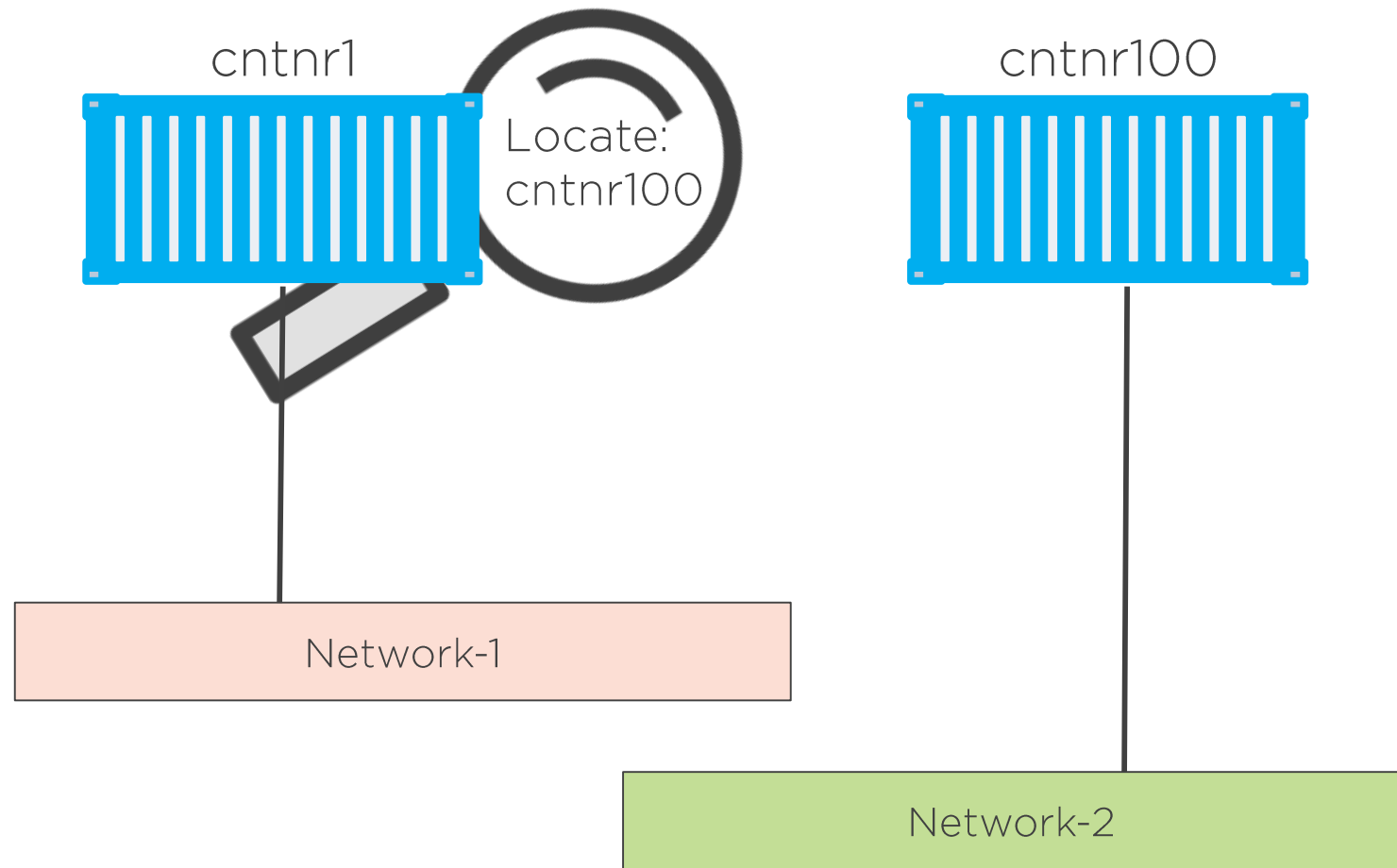
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VIP-based Load Balancing

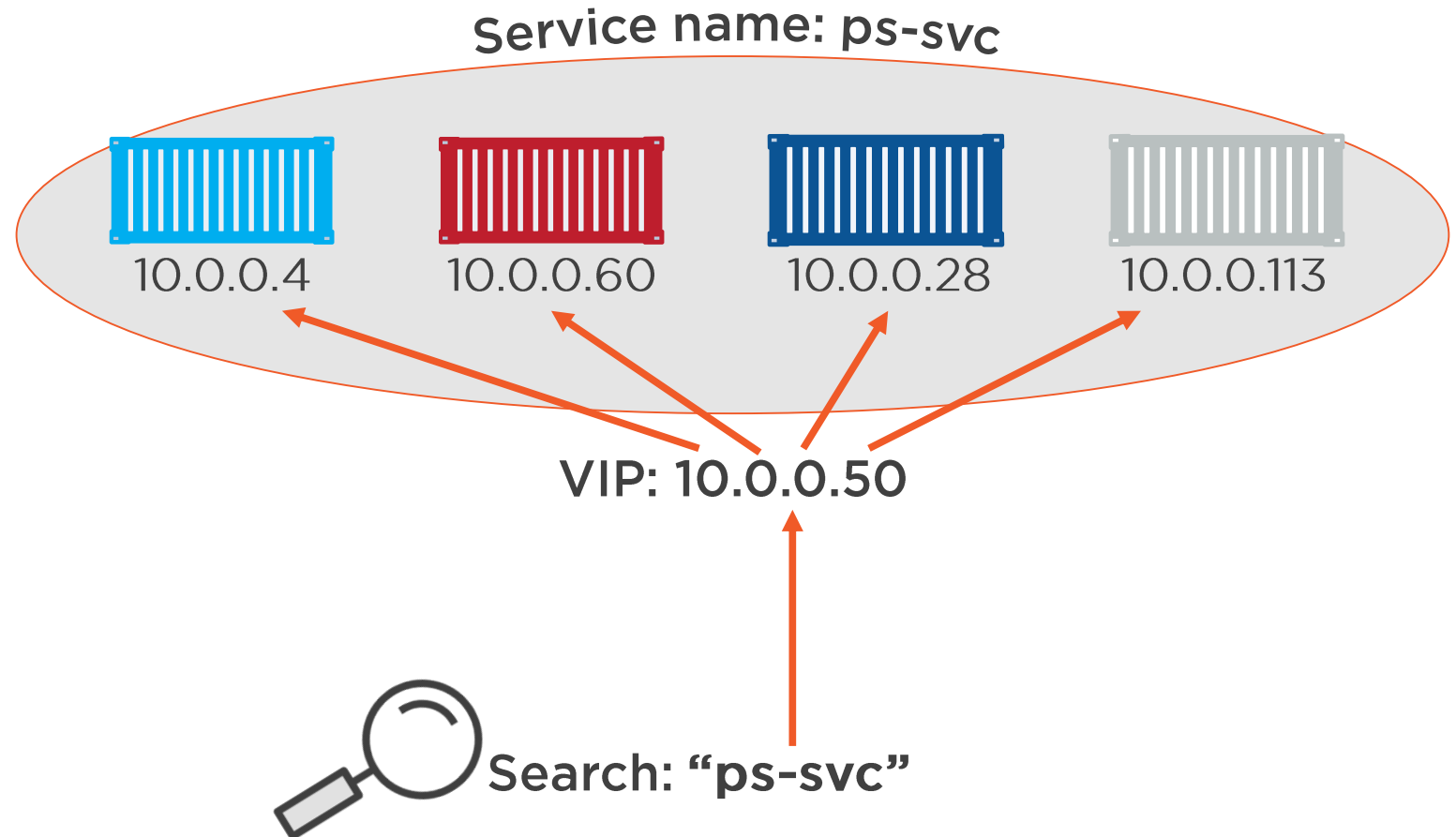
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VIP-based Load Balancing

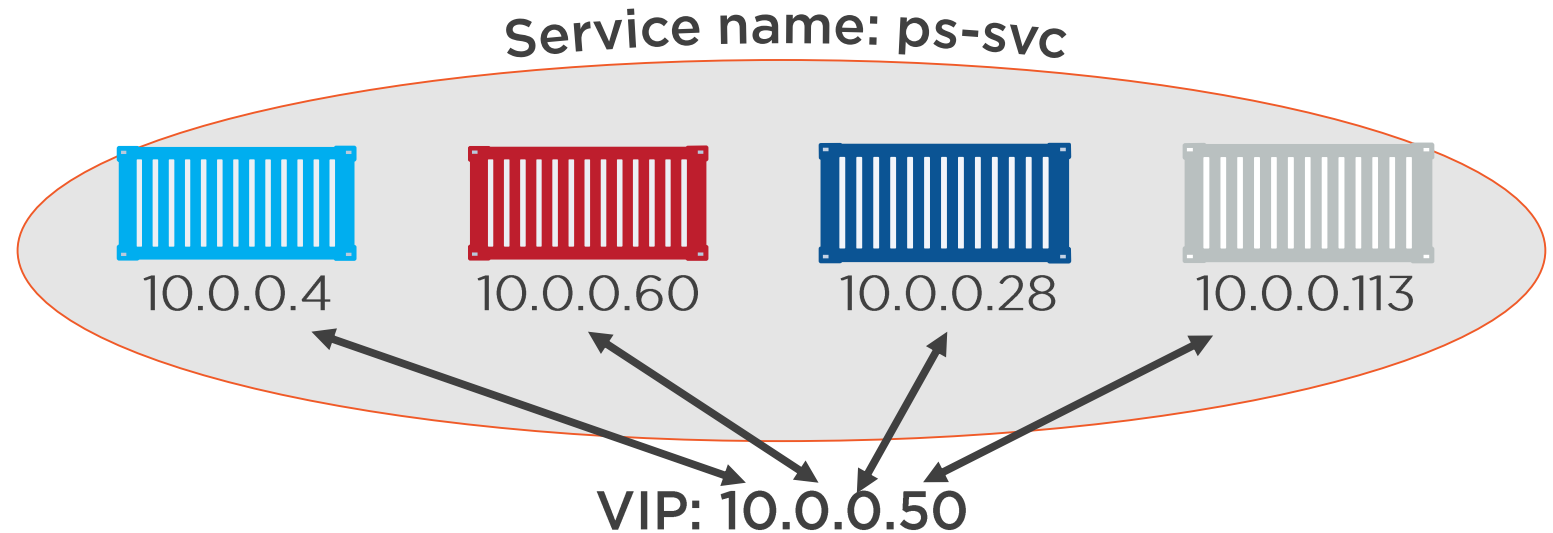
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VIP-based Load Balancing

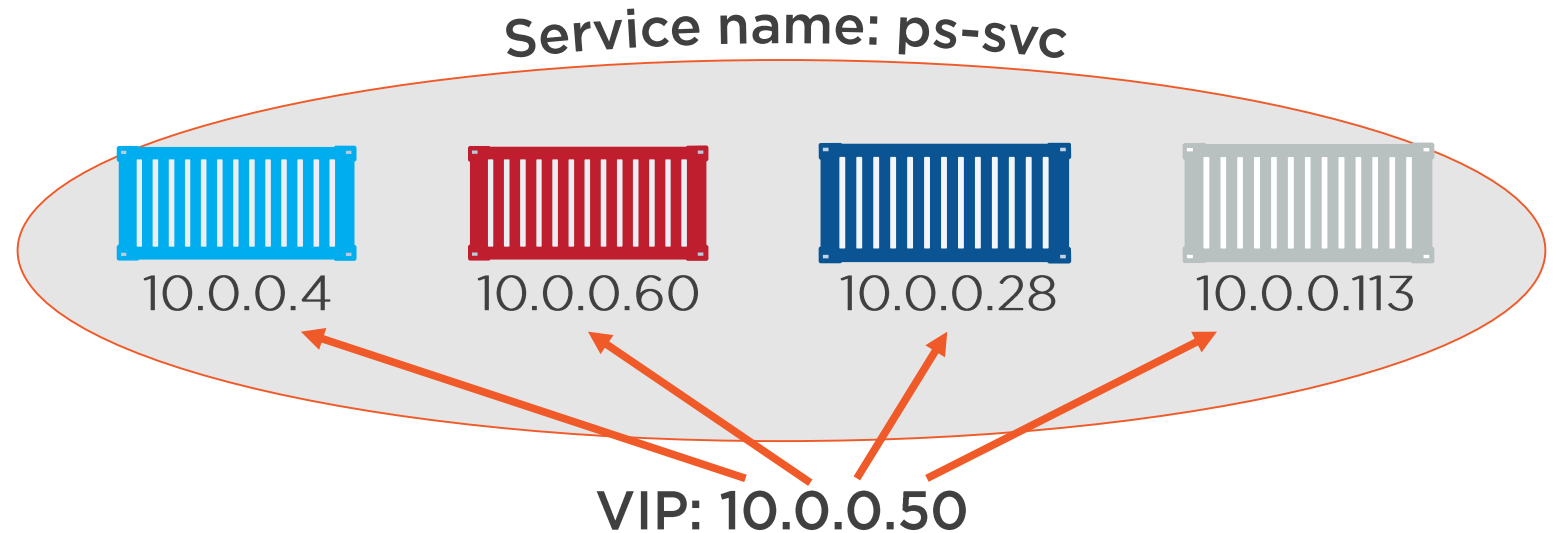
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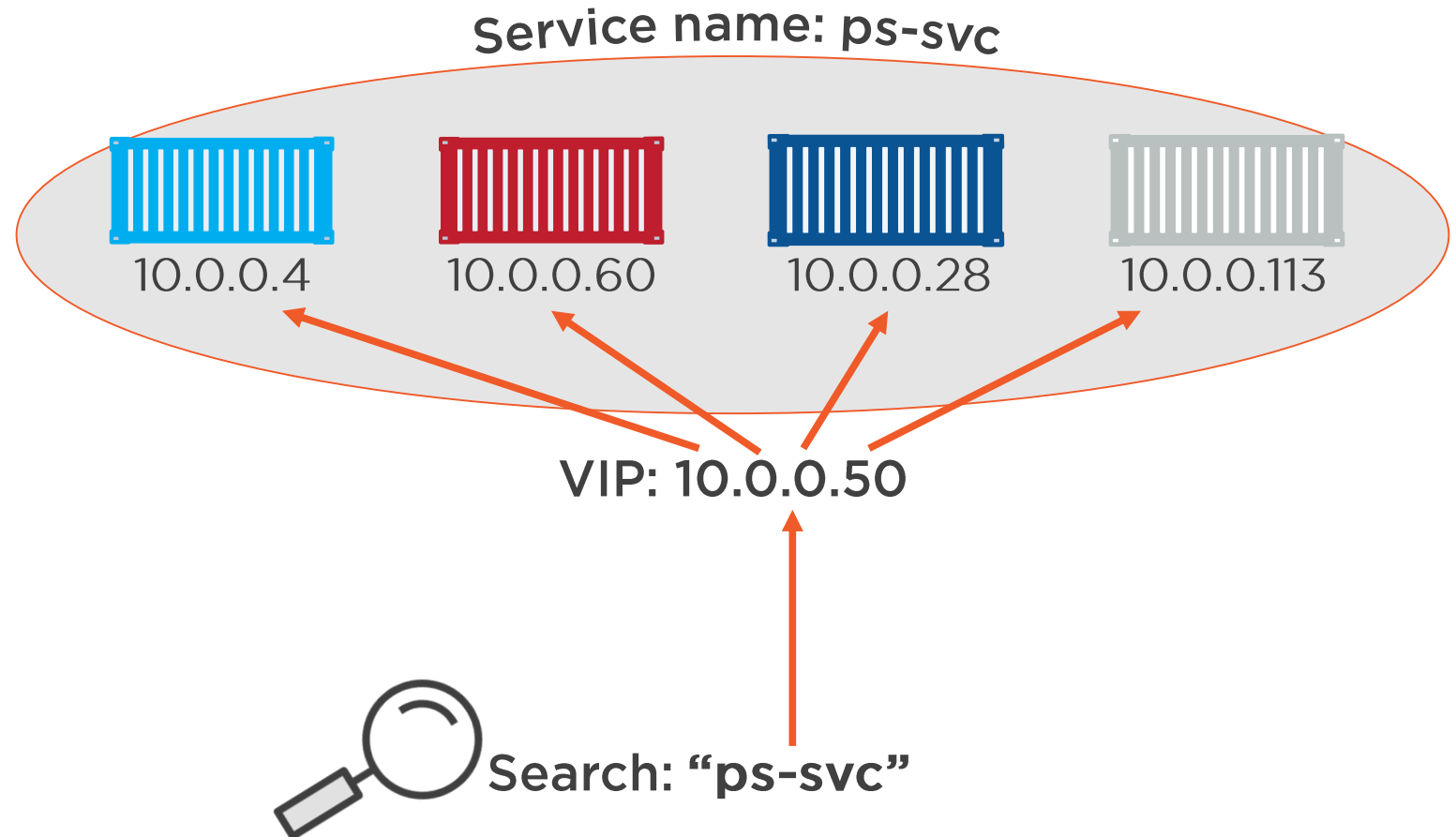
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VIP-based Load Balancing

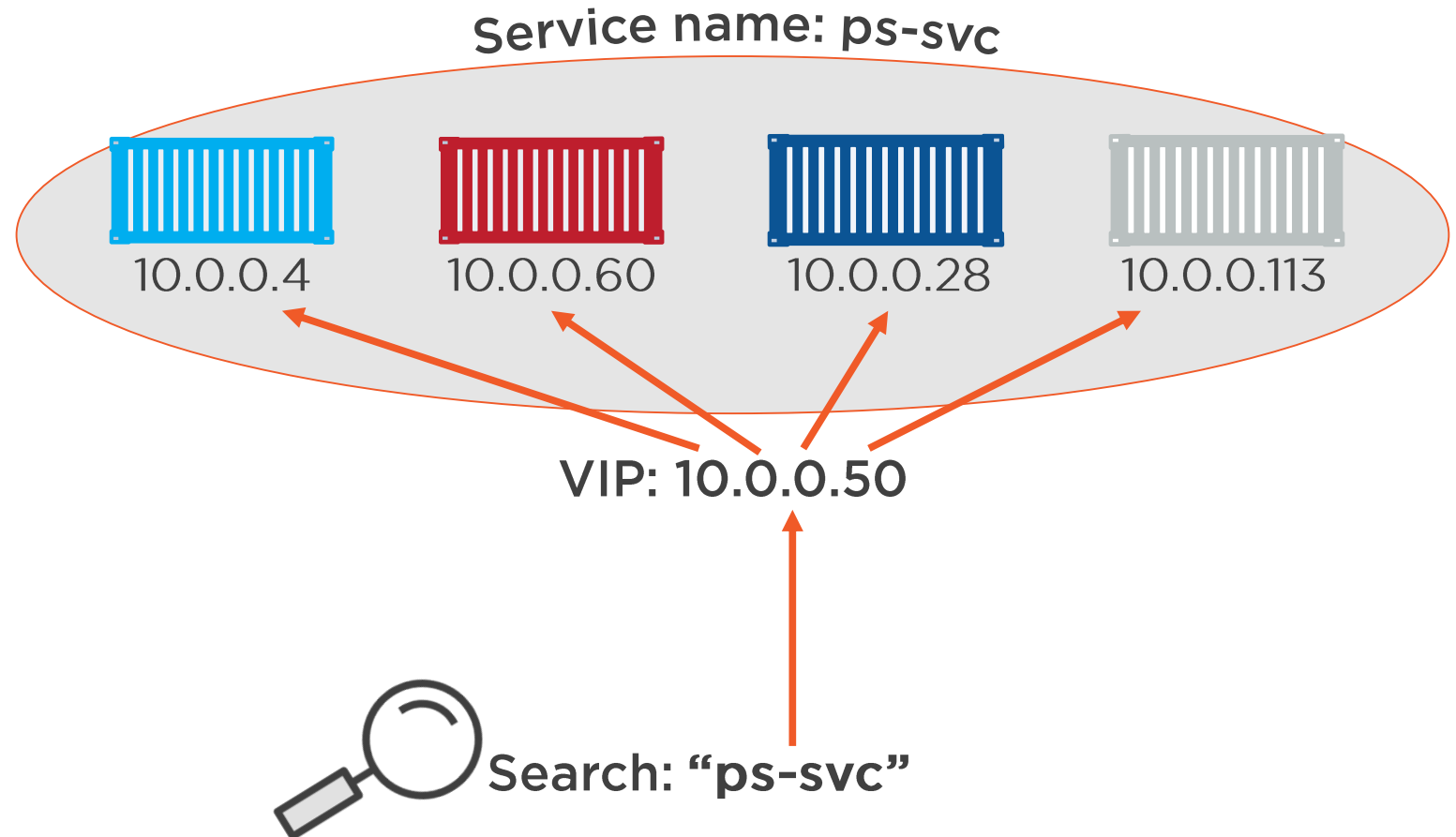
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Network-scoped



Coming up...

Transport Layer (L4) Routing Mesh

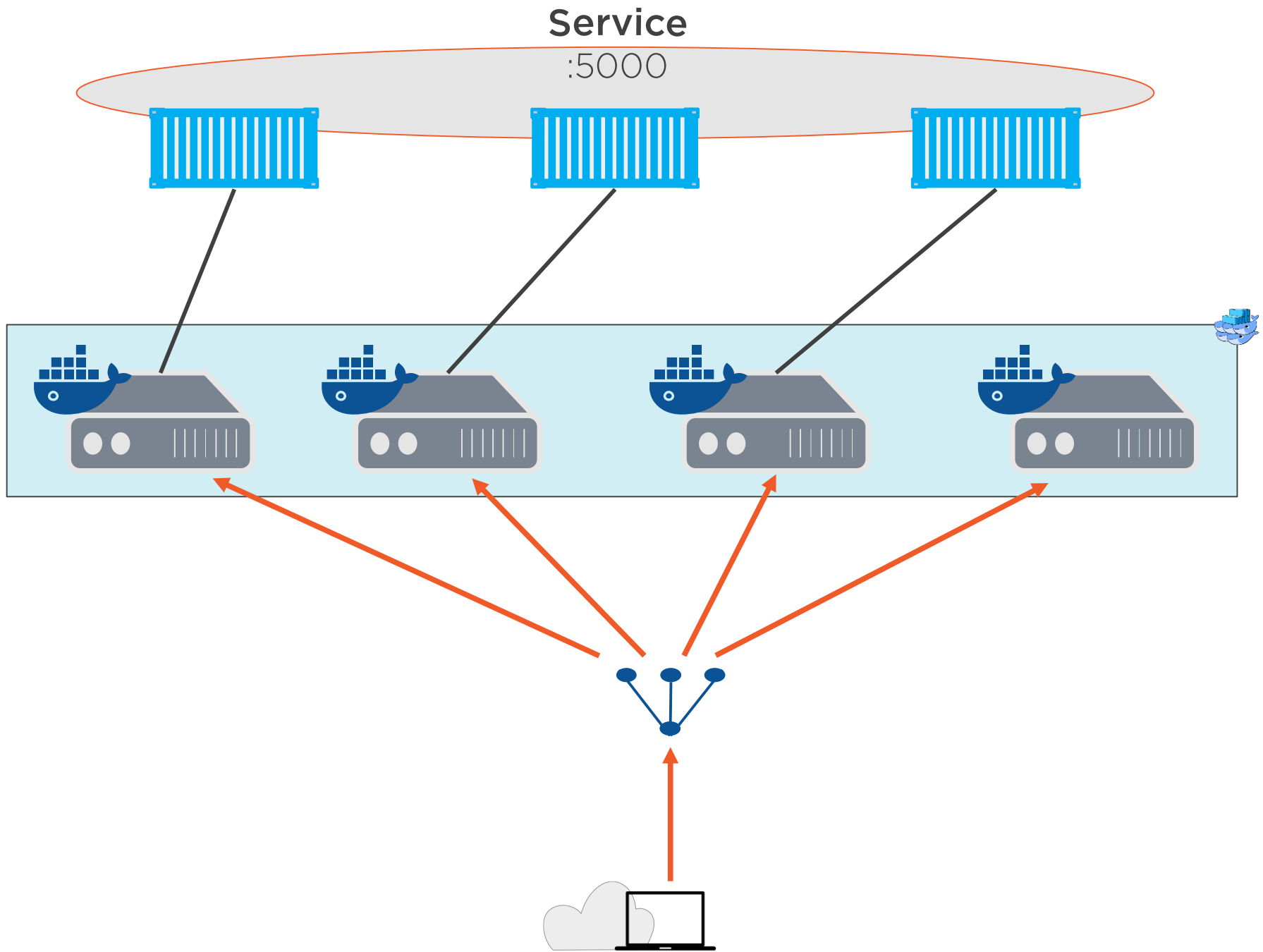


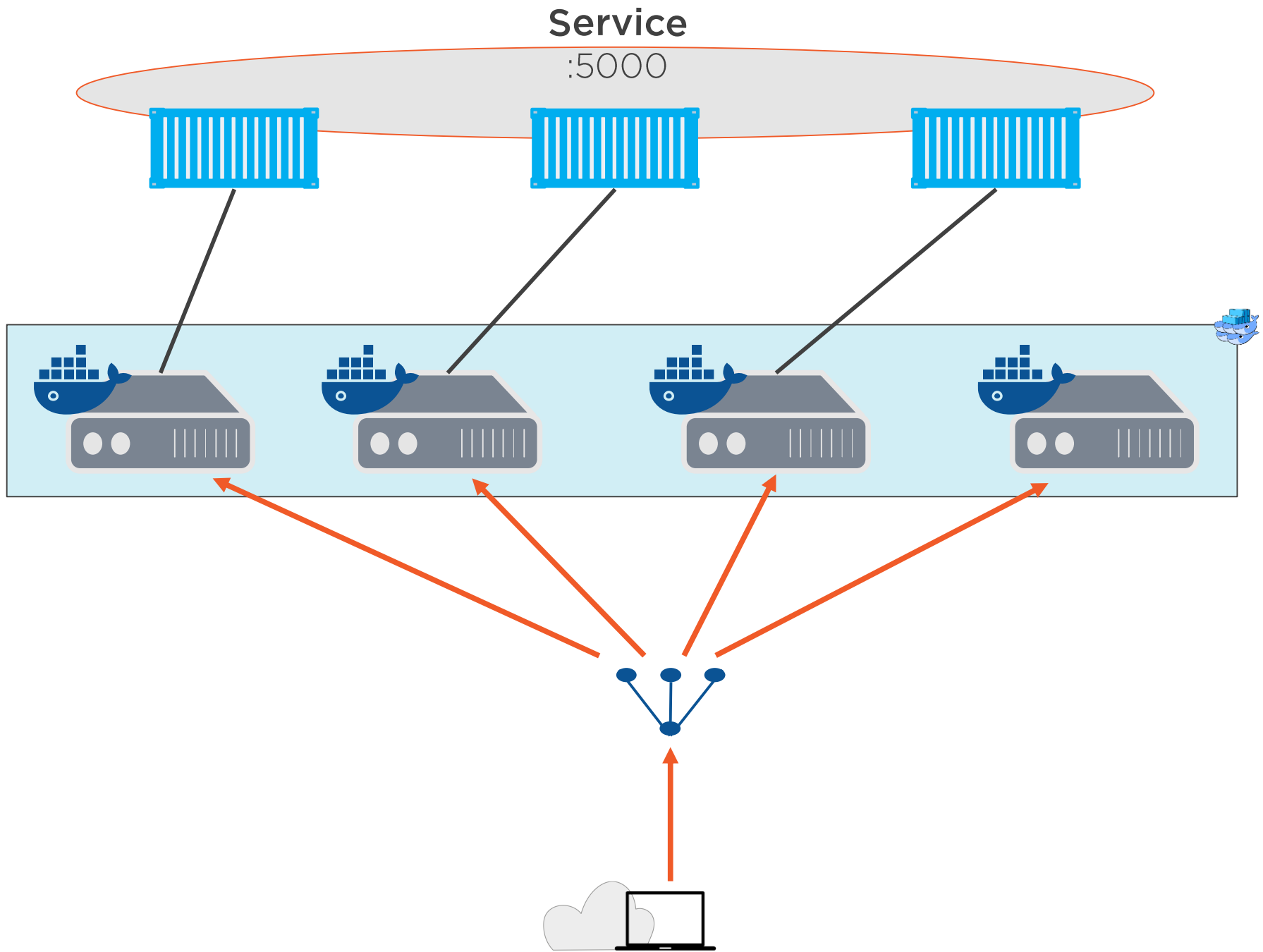
Routing and load balance incoming connections with the

Routing Mesh

(Transport Layer/Layer 4)







Create a Swarm

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

Creates a swarm-wide overlay called **ingress**

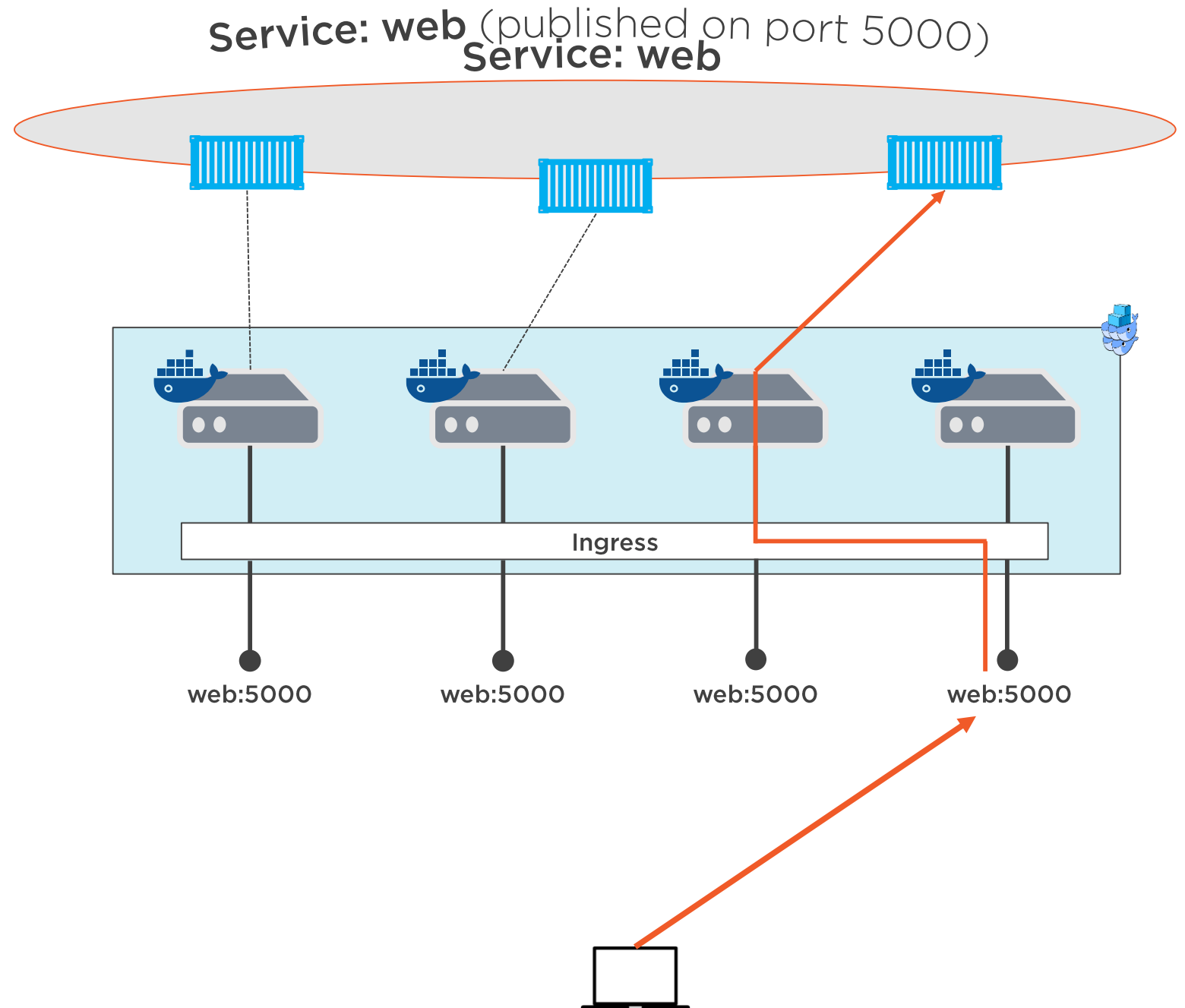
Create a service

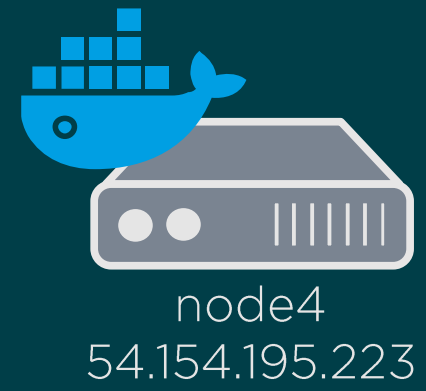
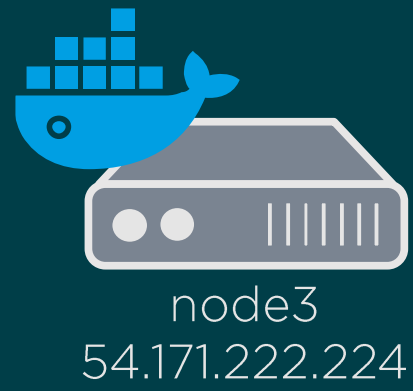
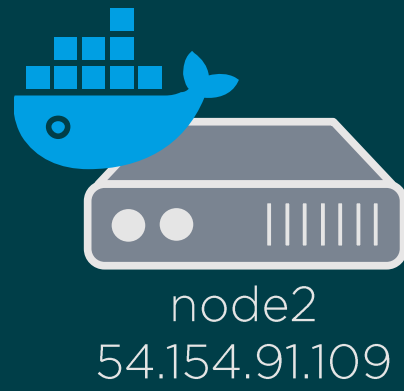
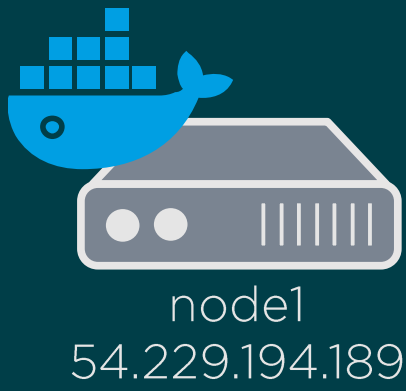
```
$ docker service create...
```

Publish it on a port (swarm-wide)

Incoming requests:

- Can hit **any** node
- Will resolve to the service VIP
- VIP-based load balancing will balance across all tasks in service





HTTP Routing Mesh (HRM)

Routing and load balance incoming connections with the
Builds on top of port-based/L4 routing mesh

- Allows multiple services on the same port
- Operates at the application layer (L7)

Very new at the time of recording

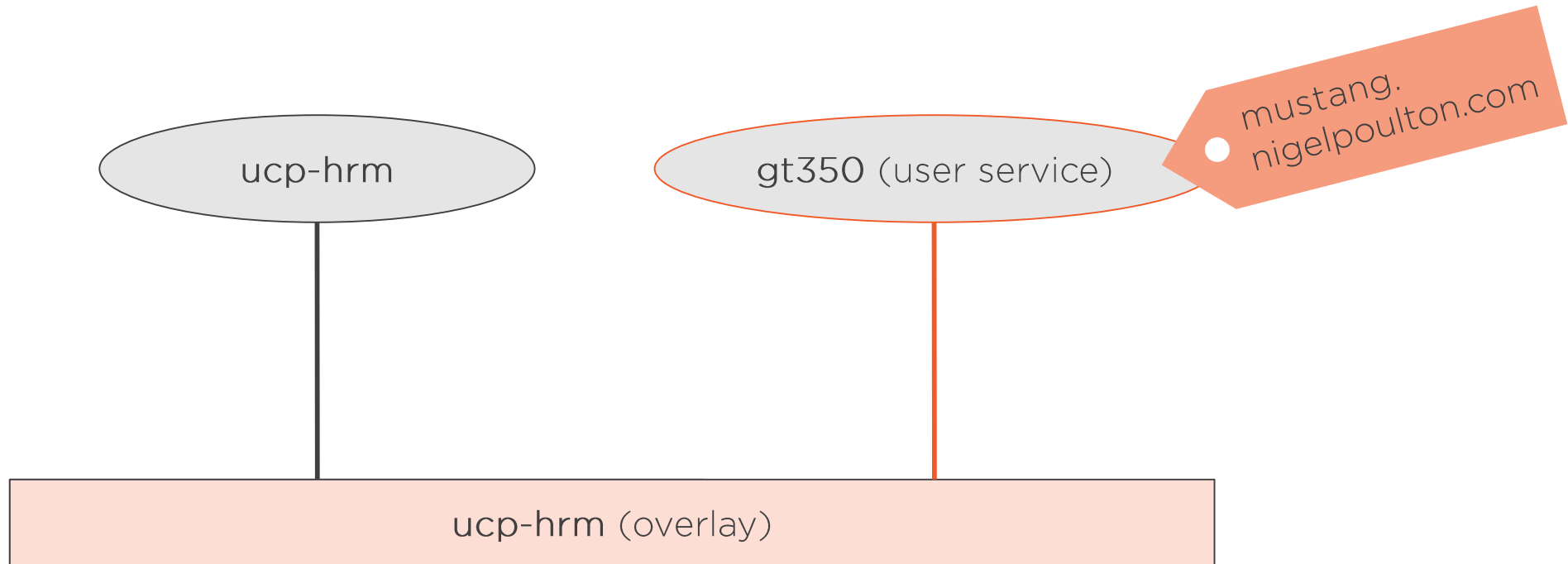
(Application Layer/Layer 7)

Requires Docker Datacenter*

*Who knows if this will change in the future?!?

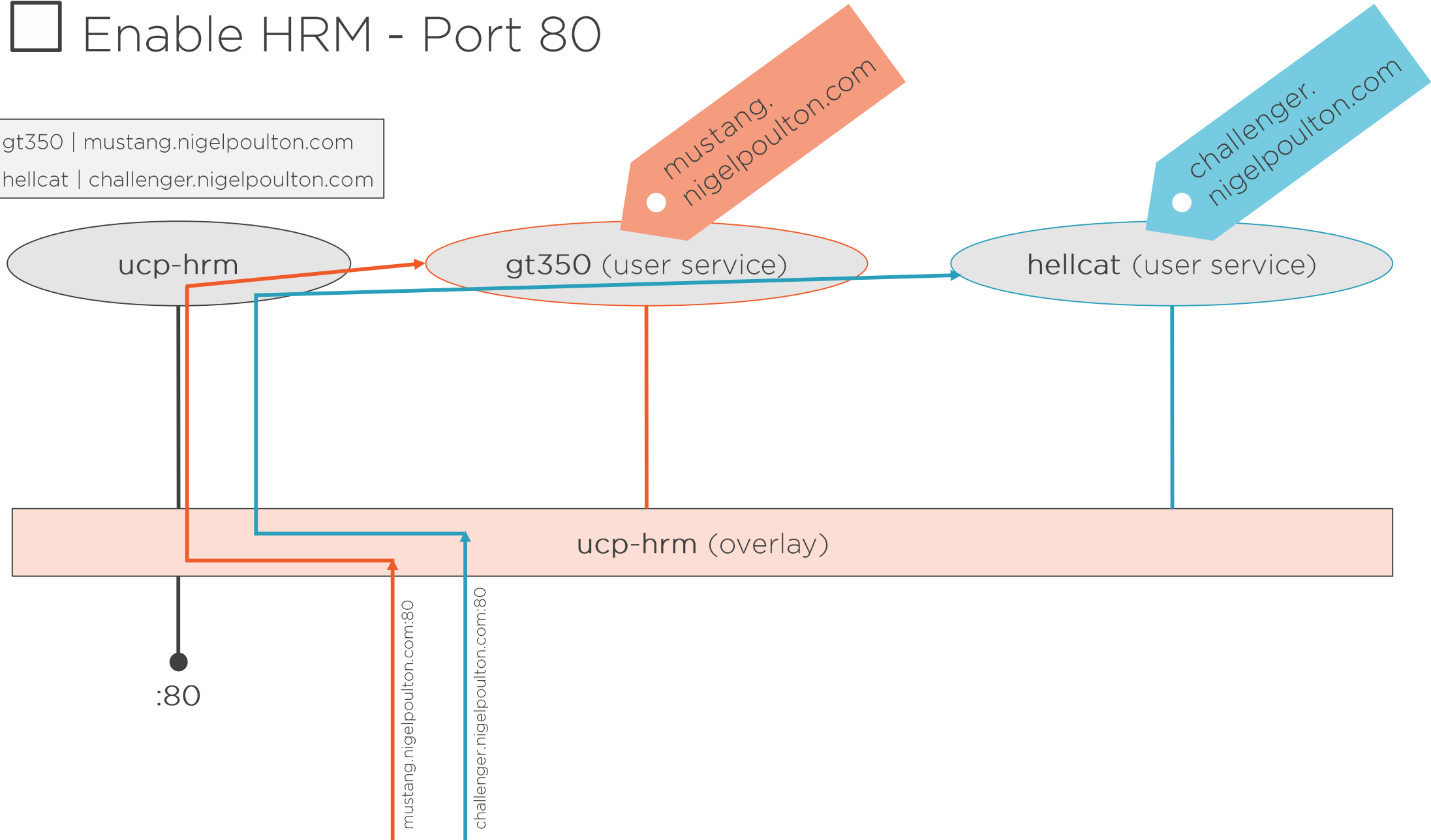


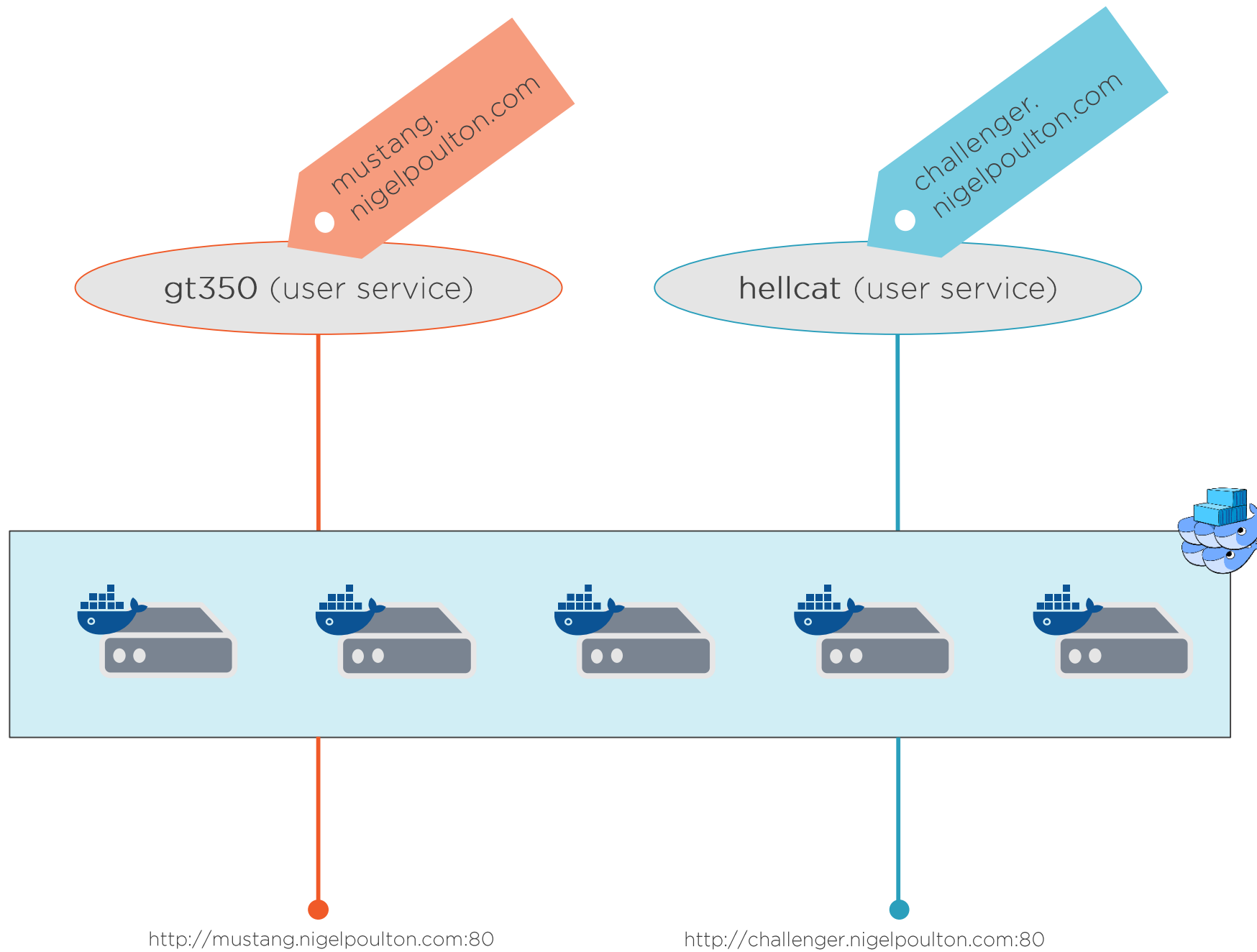
☐ Enable HRM - Port 80



☐ Enable HRM - Port 80

gt350 | mustang.nigelpoulton.com
hellcat | challenger.nigelpoulton.com

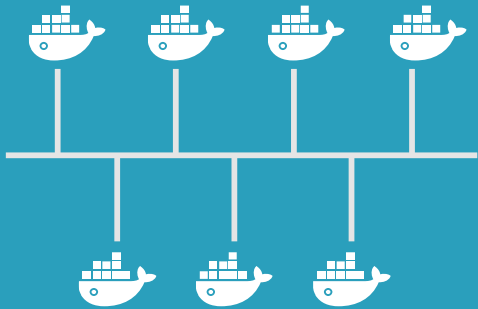




Congrats!



Summary

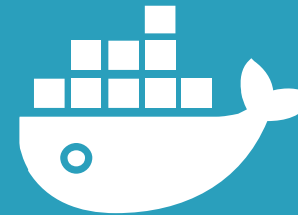


Docker
networking is
moving fast

CNM is the
design

Libnetwork
implements the
CNM

Libnetwork is
foundation of
Docker
networking



Drivers
implement
details

Drivers are
pluggable

Swarm is the
future

Network services





 @nigelpoulton

