

Docker Swarm

相關指令

```
# 查詢swarm狀態
docker info
# 未開啟
Swarm: inactive

# 初始化swarm
docker swarm init
#####
Swarm initialized: current node (4szs3vf8x9pb79me4cxfsb9m2) is now a manager.

To add a worker to this swarm, run the following command:
#加入叢集使用以下命令
  docker swarm join --token SWMTKN-1-3i2aq39bqqudp6p6y3o4ubw4ca1036z85z3huf9lyfjdfns88-33y43c8gw2ch85wbl2jdb4w0e
192.168.65.6:2377

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions.
#####

#查詢節點
docker node ls
ID                HOSTNAME          STATUS  AVAILABILITY  MANAGER STATUS  ENGINE VERSION
4szs3vf8x9pb79me4cxfsb9m2 * docker-desktop  Ready   Active        Leader          20.10.6

# 開啟後查詢 docker info
Swarm: active
NodeID: 4szs3vf8x9pb79me4cxfsb9m2
Is Manager: true
ClusterID: 83phccx66ca4rji17wk8p5kce
Managers: 1
Nodes: 1
Default Address Pool: 10.0.0.0/8
SubnetSize: 24
Data Path Port: 4789
Orchestration:

# 離開docker swarm 叢集
docker swarm leave -f
```

docker swarm init 背後發生了什麼

主要是PKI和安全相關的自動化

- 創建swarm集群的根證書
- manager節點的證書
- 其它節點加入集群需要的tokens

創建Raft資料庫用於存儲證書，配置，密碼等數據

建立一個service(container)

```
# docker service create {image}:{tag}
docker service create --name web nginx:latest
```

```
# 取得servie id(不是container id)
docker service ls
```

```

ID      NAME      MODE      REPLICAS  IMAGE      PORTS
l5wvuxzw9l96  jolly_euclid  replicated  1/1      nginx:latest

# 查看container
docker service ps l5wvuxzw9l96
ID      NAME      IMAGE      NODE      DESIRED STATE  CURRENT STATE      ERROR      PORTS
vp8dkrsqslxw  jolly_euclid.1  nginx:latest  docker-desktop  Running        Running 3 minutes ago

# 建立3個副本(update)
docker service update l5wvuxzw9l96 --replicas 3
l5wvuxzw9l96
overall progress: 3 out of 3 tasks
1/3: running  [=====>]
2/3: running  [=====>]
3/3: running  [=====>]

# 建立4個副本(scale)
docker service scale l5wvuxzw9l96=4
web scaled to 4
overall progress: 4 out of 4 tasks
1/4: running  [=====>]
2/4: running  [=====>]
3/4: running  [=====>]
4/4: running  [=====>]

#docker sercie ps
docker service ps l5wvuxzw9l96
ID      NAME      IMAGE      NODE      DESIRED STATE  CURRENT STATE      ERROR      PORTS
vp8dkrsqslxw  jolly_euclid.1  nginx:latest  docker-desktop  Running        Running 13 minutes ago
qavp0npkxko3l  jolly_euclid.2  nginx:latest  docker-desktop  Running        Running 7 minutes ago
kqs6uvbkxmjh  jolly_euclid.3  nginx:latest  docker-desktop  Running        Running 7 minutes ago

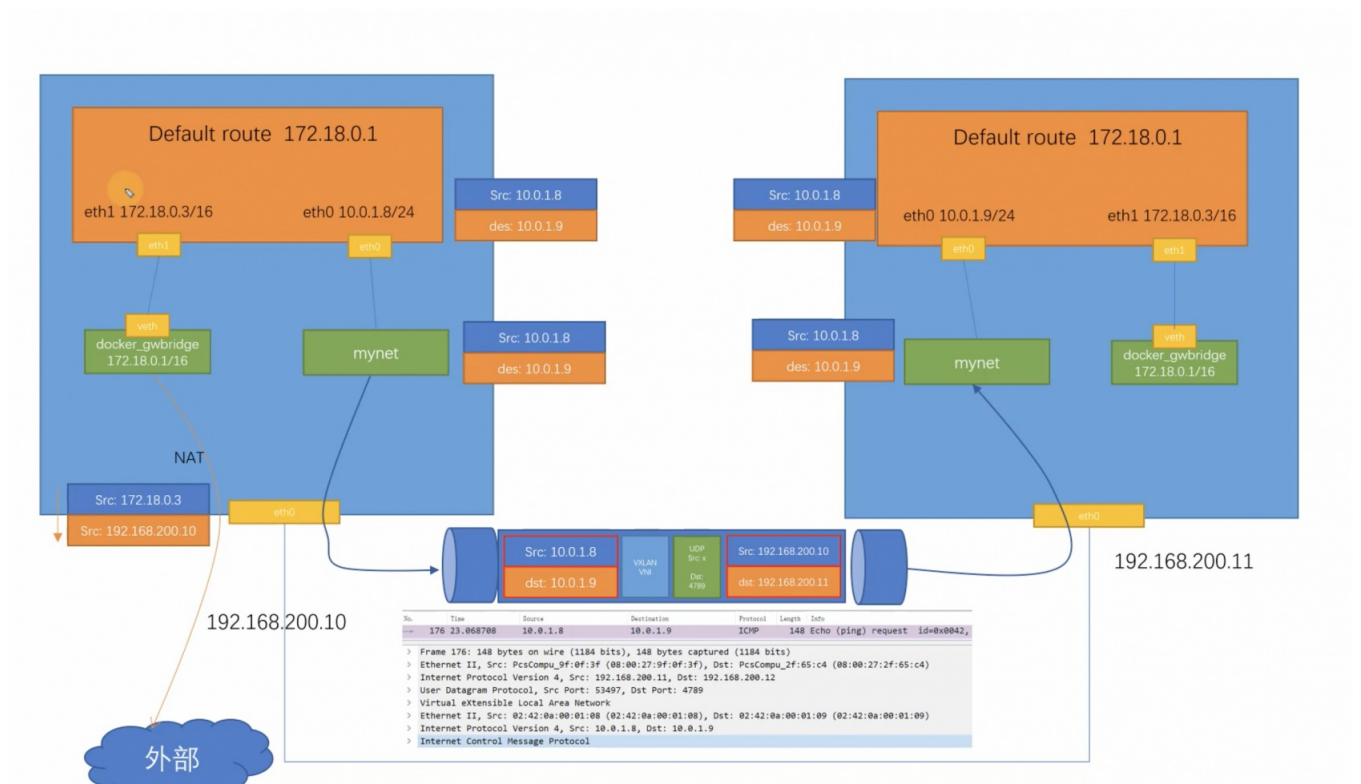
```

service 刪除

```
docker service rm l5wvuxzw9l96
```

docker swarm的網路：

- 第一是外部如何訪問部署運行在swarm集群內的服務，可以稱之為 入方向 流量，在swarm裡我們通過 ingress 來解決
- 第二是部署在swarm集群裡的服務，如何對外進行訪問，這部分又分為兩塊：
 - 第一，東西向流量，也就是不同swarm節點上的容器之間如何通信，swarm通過 overlay 網絡來解決；
 - 第二，南北向流量，也就是swarm集群裡的容器如何對外訪問，比如互聯網，這個是 Linux bridge + iptables NAT 來解決的



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