

Docker Swarm

Kube's little brother

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```
# man docker-swarm
```

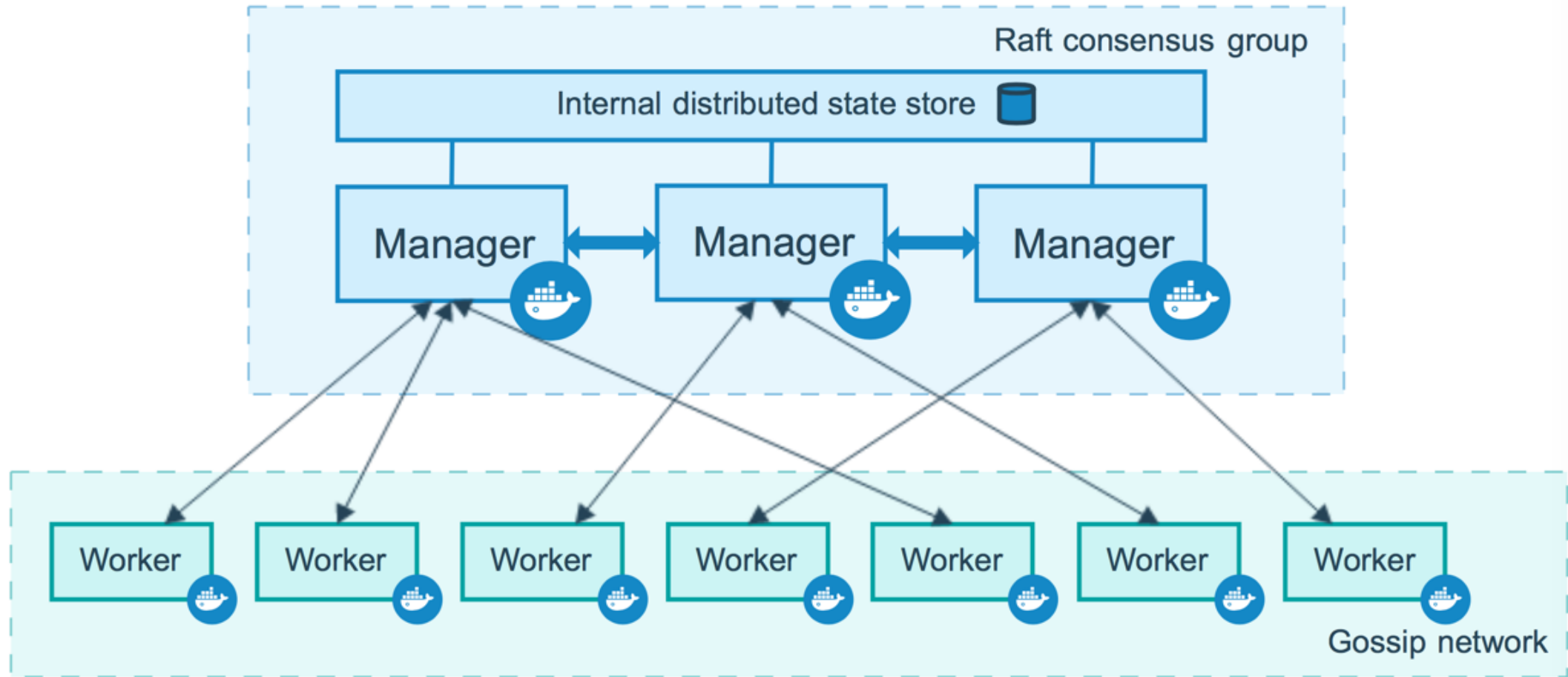
Docker Swarm Standalone

- turn a pool of Docker hosts into a single, large, virtual Docker host
- key-value data store like [Consul](#), [etcd](#) or [Zookeeper](#) needed

Docker Swarm Mode

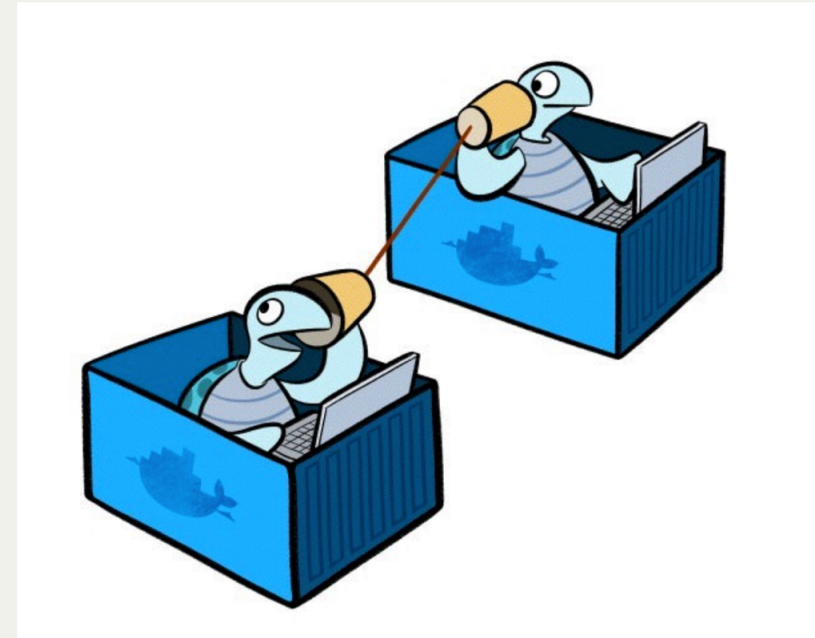
- since Docker v1.12.0
- manage natively a cluster of Docker Engines
- key-value already included

Docker Swarm architecture



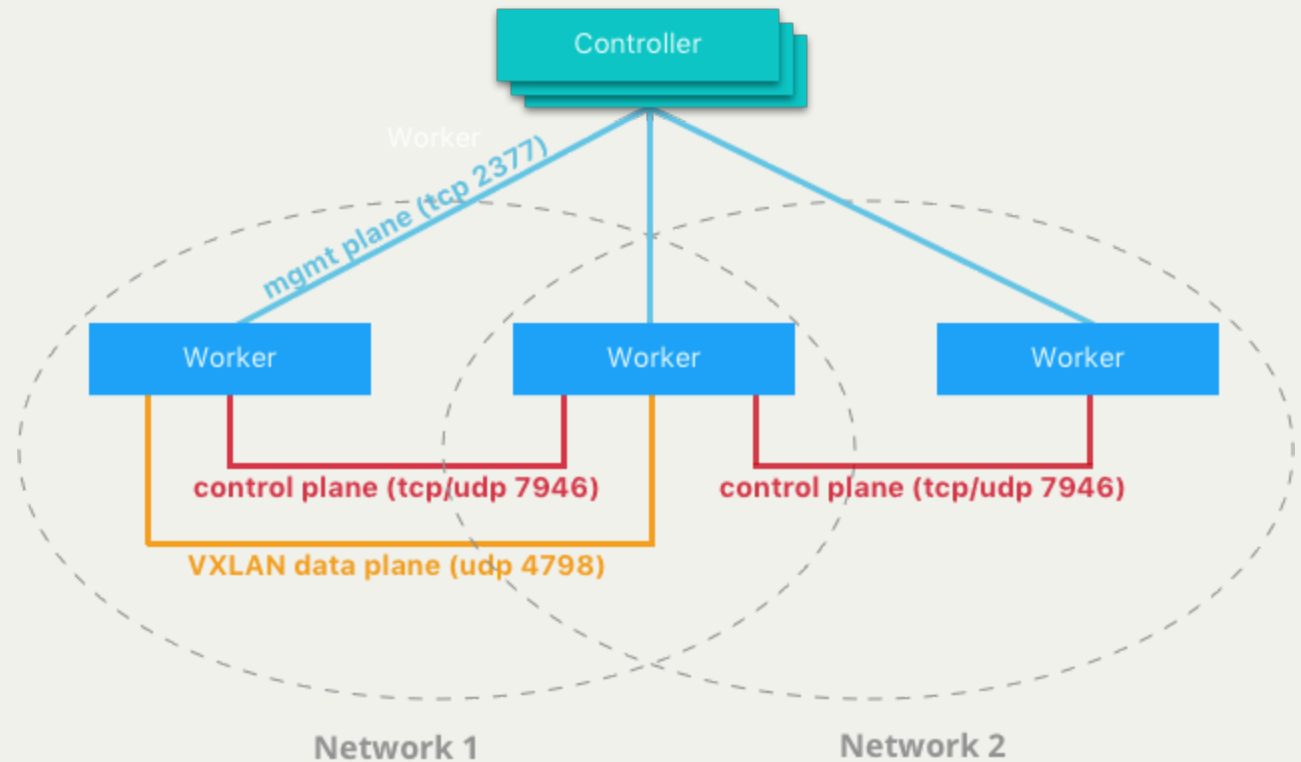
Docker swarm network architecture

- Host - no separation from host
- Bridge - switch, default
- **Overlay - multiple Docker hosts**
- MACVLAN - routable
- None
- contiv, weave, calico, kuryr



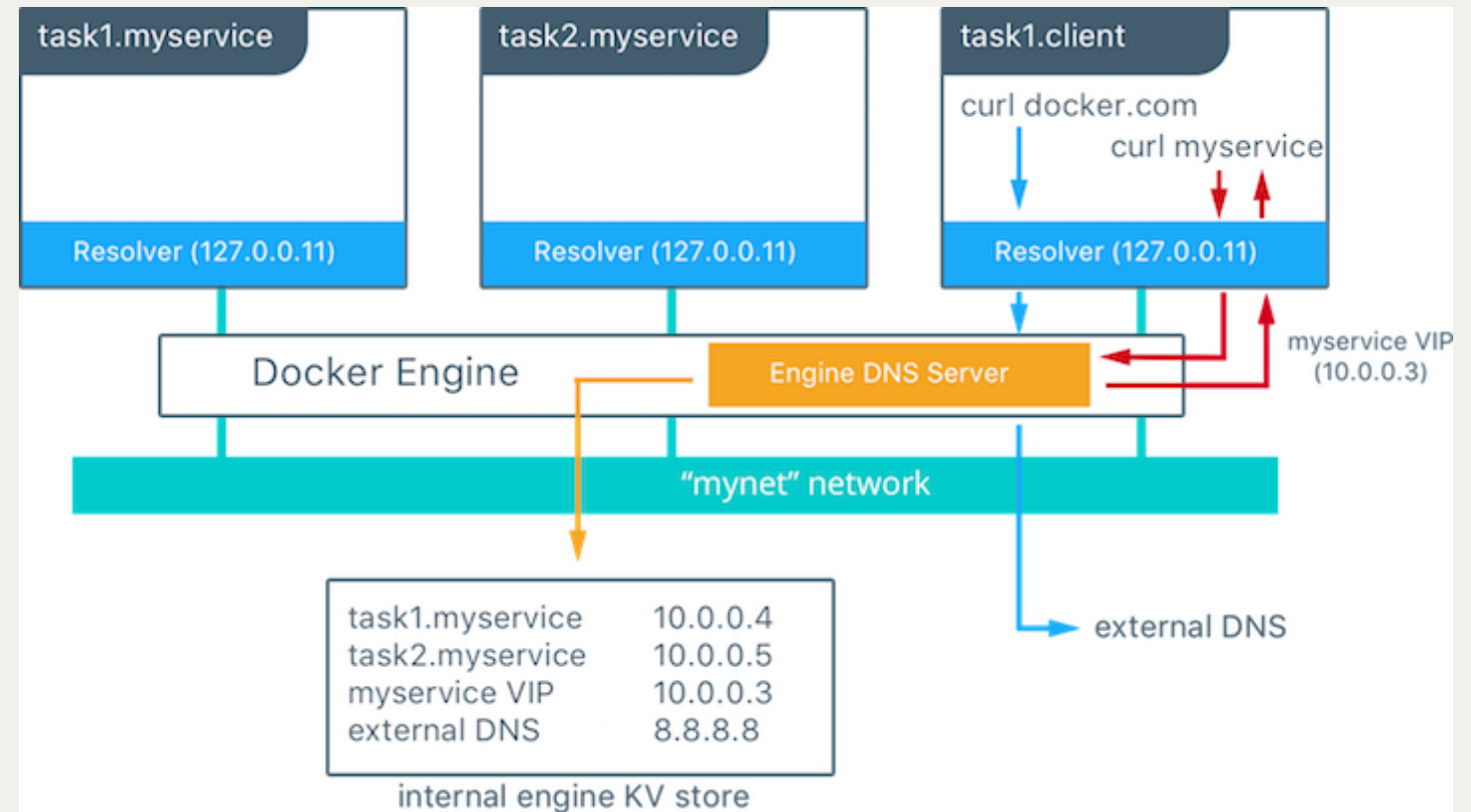
Docker swarm network architecture

- P2P control plane
- node keepalive
- topology-aware
- VXLAN
- IPSec (data plane)
- TLS (control plane)



Docker swarm service discovery

- Docker's embedded DNS
- LB - internal x external
- Routing Mesh - ipvs



Docker swarm deployment

Master:

```
1 docker swarm init
```

Others:

```
1 docker swarm join \  
2 --token \  
3 SWMTKN-1-5t1l4lqbosbas \  
4 10.11.12.259
```

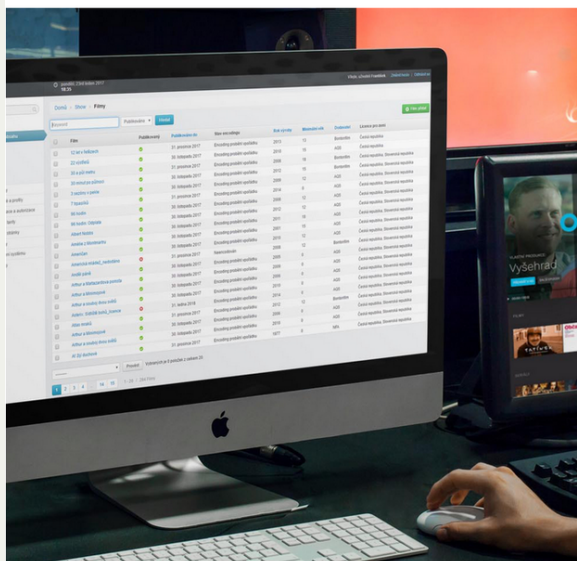

Docker swarm app deployment

```
1 version: '3.7'
2 services:
3   agent:
4     image: portainer/agent
5     environment:
6       AGENT_SECRET: "prgcont"
7     volumes:
8       - /var/run/docker.sock:/var/run/docker.sock
9     networks:
10      - agent-network
11     deploy:
12       mode: global
13       placement:
14         constraints:
15           - node.platform.os == linux
16   portainer:
17     environment:
18       AGENT_SECRET: "prgcont"
19     image: portainer/portainer
20     command:
21       - "-H"
22       - "tcp://tasks.agent:9001"
```

```
1     restart: always
2     volumes:
3       - portainer-data:/data
4     networks:
5       - agent-network
6       - traefik-public
7     deploy:
8       labels:
9         - traefik.enable=true
10      mode: replicated
11      replicas: 1
12      placement:
13        constraints:
14          - node.role == manager
15 networks:
16   agent-network:
17     driver: overlay
18     attachable: true
19   traefik-public:
20     external: true
21 volumes:
22   portainer-data:
```

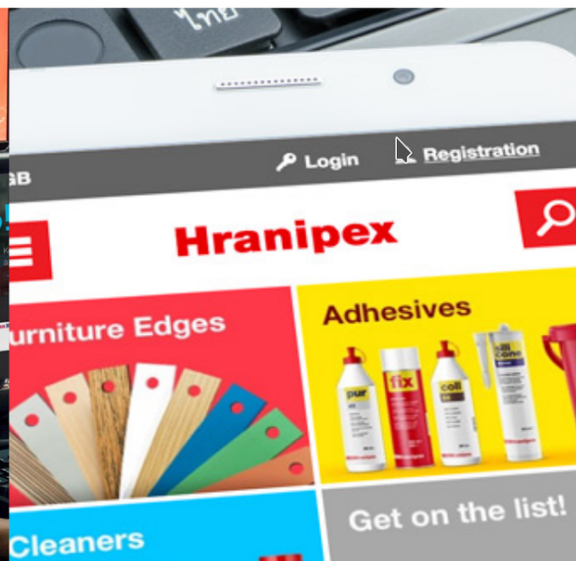
```
# history | grep docker-swarm
```

SELECTED PROJECTS



Obbod TV

Netflix-like online streaming
TV for CEE region



Hranipex e-Commerce

Multi-subsidiaries, ERP
powered e-commerce solution



Exapro ERP

Custom ERP for a global B2B
marketplace



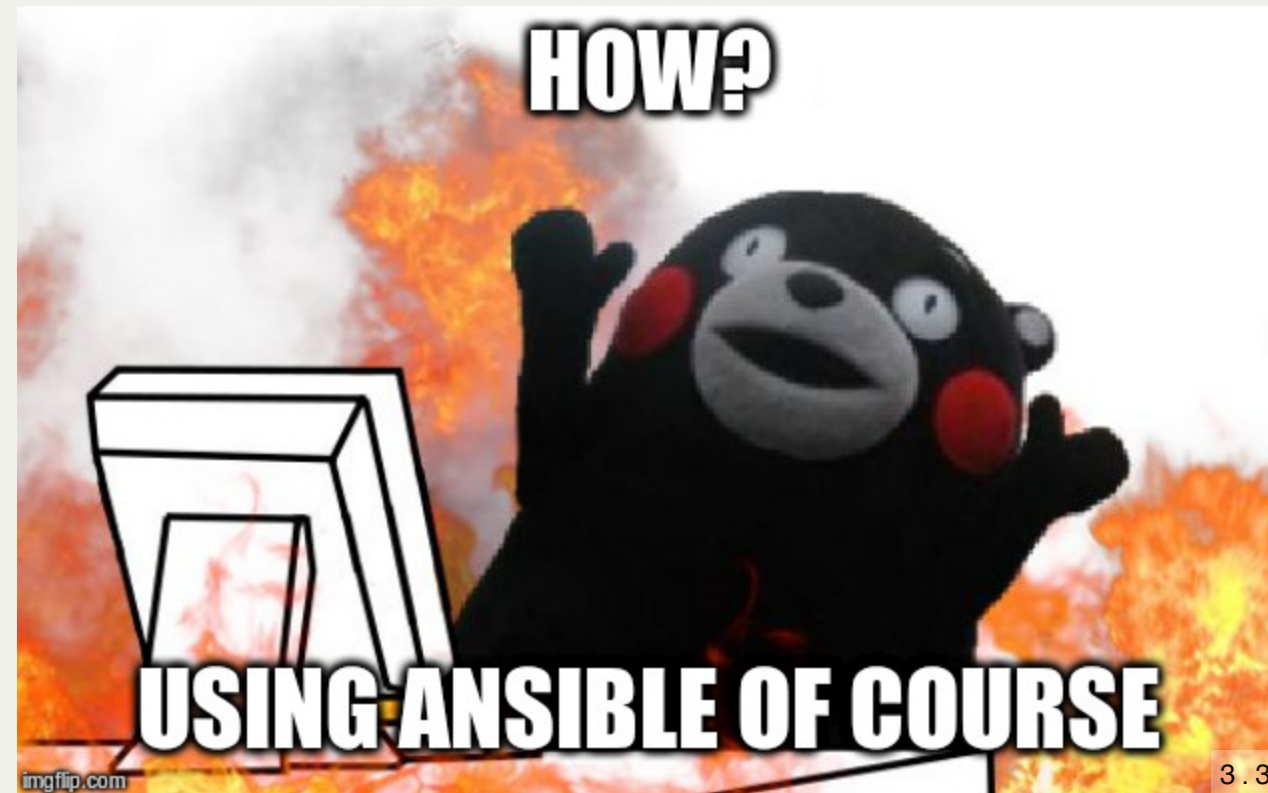
Quanda SaaS

Email marketing, campaigns &
surveys platform

[VIEW MORE](#)

Docker swarm deployment

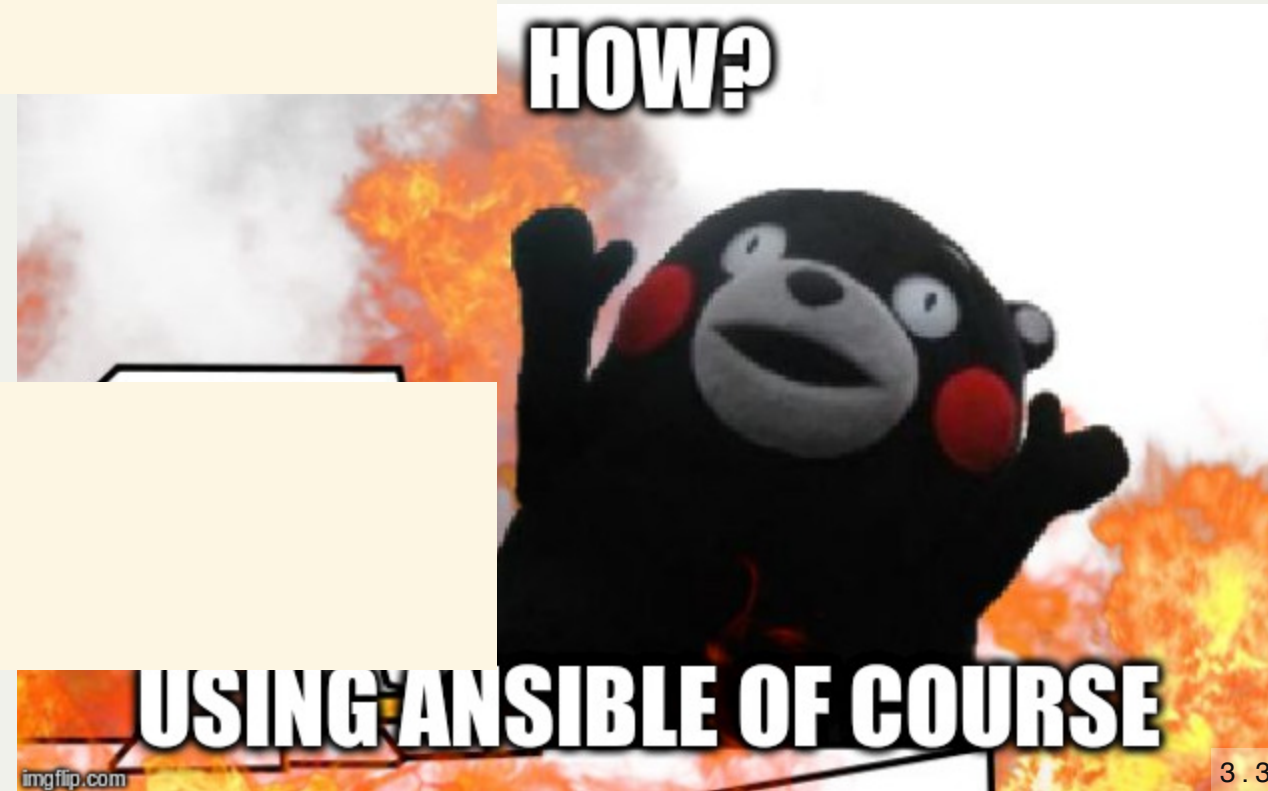
Docker swarm deployment



Docker swarm deployment

```
1 [swarm-prgcont]
2 swarm01.prgcont.cz swarm_cluster_name=my_cluster      swarm_manager=yes
3 swarm02.prgcont.cz swarm_cluster_name=my_other_cluster swarm_manager=yes
4 swarm03.prgcont.cz swarm_cluster_name=my_other_cluster
```

```
1 - hosts: swarm-prgcont
2   become: true
3   become_user: root
4   roles:
5     - docker_swarm
6   tags: docker_swarm
```



Docker app deployment

... by Ansible, of course!

- no published ports
- Traefik LB

Key outputs

1. Docker Swarm is cool, give it a try
2. COEX is cool, take a look
3. published ports are skipping big part of your FW
4. IPv6 is still second-class citizen

Q & A