docker集群（swarm mode）介绍

docker集群解决方案

- [docker swarm](before docker 1.12)

- [docker swarm mode](from docker 1.12)

- [Kubernetes](by google)

功能点

- 节点(manager node, worker node)

- 服务(service)

- 服务栈(stack)

- 跨节点网络(overlay network)

- 负载均衡(Load balancing)

- 水平扩展(Scaling)

- 滚动升级(Rolling updates)

创建集群

on manager node

```
$ docker swarm init --advertise-addr 192.168.99.100
Swarm initialized: current node (dxn1zf6l61qsb1josjja83ngz

To add a worker to this swarm, run the following command:

    docker swarm join \
    --token SWMTKN-1-49nj1cmql0jkz5s954yi3oex3nedyz0fb0xx1
    192.168.99.100:2377

To add a manager to this swarm, run 'docker swarm join-tok
```

加入集群

on woker node

```
$ docker swarm join \
    --token  SWMTKN-1-49nj1cmql0jkz5s954yi3oex3nedyz0fb0xx14
    192.168.99.100:2377

This node joined a swarm as a worker.
```

查看集群node

```
$ docker node ls
ID                            HOSTNAME   STATUS   AVAILABILIT
9j68exjopxe7wfl6yuxml7a7j     worker1    Ready    Active
dxn1zf6l61qsb1josjja83ngz *   manager1   Ready    Active
```

创建服务

on manager node

```
$ docker service create --replicas 1 --name helloworld alp

ke2h5grlbm9rnn396jwf9xdsg
```

查看服务

`docker service ls`

```
$ docker service ls
ID            NAME        MODE         REPLICAS   IMAGE
ke2h5grlbm9r  helloworld  replicated   1/1        alpine:3.3
```

`docker service ps`

```
$ docker service ps helloworld
ID            NAME          IMAGE        NODE   DESIRED STAT
na794uib62ln  helloworld.1  alpine:3.3   moby   Running
```

查看服务

`docker service inspect`

```
$ docker service inspect helloworld --pretty
```

扩展服务

docker service scale

```
$ docker service scale helloworld=5
helloworld scaled to 5
```

```
$ docker service ps helloworld
ID              NAME            IMAGE        NODE   DESIRED STAT
na794uib62ln    helloworld.1    alpine:3.3   moby   Running
urvmaizyyd3g    helloworld.2    alpine:3.3   moby   Running
tow6bdb4f68q    helloworld.3    alpine:3.3   moby   Running
x6zrw5fdcy3a    helloworld.4    alpine:3.3   moby   Running
cuenzhbzt75a    helloworld.5    alpine:3.3   moby   Running
```

滚动升级

docker service update

$ docker service update --image alpine:3.5 --replicas 3 he
helloworld

```
$ docker service ps helloworld
ID                NAME               IMAGE        NODE   DESIRED
na794uib62ln      helloworld.1       alpine:3.3   moby   Running
srlih7gzzbmm      helloworld.4       alpine:3.5   moby   Running
x6zrw5fdcy3a       \_ helloworld.4   alpine:3.3   moby   Shutdown
v7d1gvu40431      helloworld.5       alpine:3.5   moby   Ready
cuenzhbzt75a       \_ helloworld.5   alpine:3.3   moby   Shutdown
```

服务删除

`docker service rm`

```
$ docker service rm helloworld
helloworld
```

服务栈

`docker-compose.yml`

```yaml
version: "3"
services:
  service1:
    image: alpine
    command: ping docker.com
    deploy:
      replicas: 2
  service2:
    image: alpine
    command: ping docker.com
    deploy:
      replicas: 3
```

服务栈

`docker stack deploy`

```
$ docker stack deploy -c docker-compose.yml hellostack
Creating network hellostack_default
Creating service hellostack_service1
Creating service hellostack_service2
```

查看服务栈

`docker stack ls`

```
$ docker stack ls
NAME          SERVICES
hellostack  2
```

`docker stack ps`

```
$ docker stack ps hellostack
ID                NAME                      IMAGE            NODE
wb550vo0n6ew      hellostack_service2.1     alpine:latest    moby
o3g427vrccup      hellostack_service1.1     alpine:latest    moby
r6xk60bvts6t      hellostack_service2.2     alpine:latest    moby
nzk1xt0onpn0      hellostack_service1.2     alpine:latest    moby
kqcmme3f4ubq      hellostack_service2.3     alpine:latest    moby
```

服务栈升级

```yaml
version: "3"
services:
  service1:
    image: alpine:3.5
    command: ping docker.com
    deploy:
      replicas: 3
  service2:
    image: alpine:3.3
    command: ping docker.com
    deploy:
      replicas: 2
```

服务栈升级

```
$ docker stack deploy -c docker-compose1.yml hellostack
Updating service hellostack_service2 (id: w70ph3xna81yuabr
Updating service hellostack_service1 (id: yi04102a653o9c04
```

```
$ docker stack ps hellostack
ID              NAME                        IMAGE            NO
2dsmhwakekxa    hellostack_service1.1       alpine:3.5       mo
06xb64sbeu90    hellostack_service2.1       alpine:3.3       mo
wb550vo0n6ew     \_ hellostack_service2.1   alpine:latest    mo
o3g427vrccup    hellostack_service1.1       alpine:latest    mo
tzldolccfeqk    hellostack_service1.2       alpine:3.5       mo
nzk1xt0onpn0     \_ hellostack_service1.2   alpine:latest    mo
1we1l5clll5v    hellostack_service1.3       alpine:3.5       mo
wa8dldcgmz1u    hellostack_service2.3       alpine:3.3       mo
kqcmme3f4ubq     \_ hellostack_service2.3   alpine:latest    mo
```

服务栈删除

`docker stack rm`

```
$ docker stack rm hellostack
Removing service hellostack_service2
Removing service hellostack_service1
Removing network hellostack_default
```