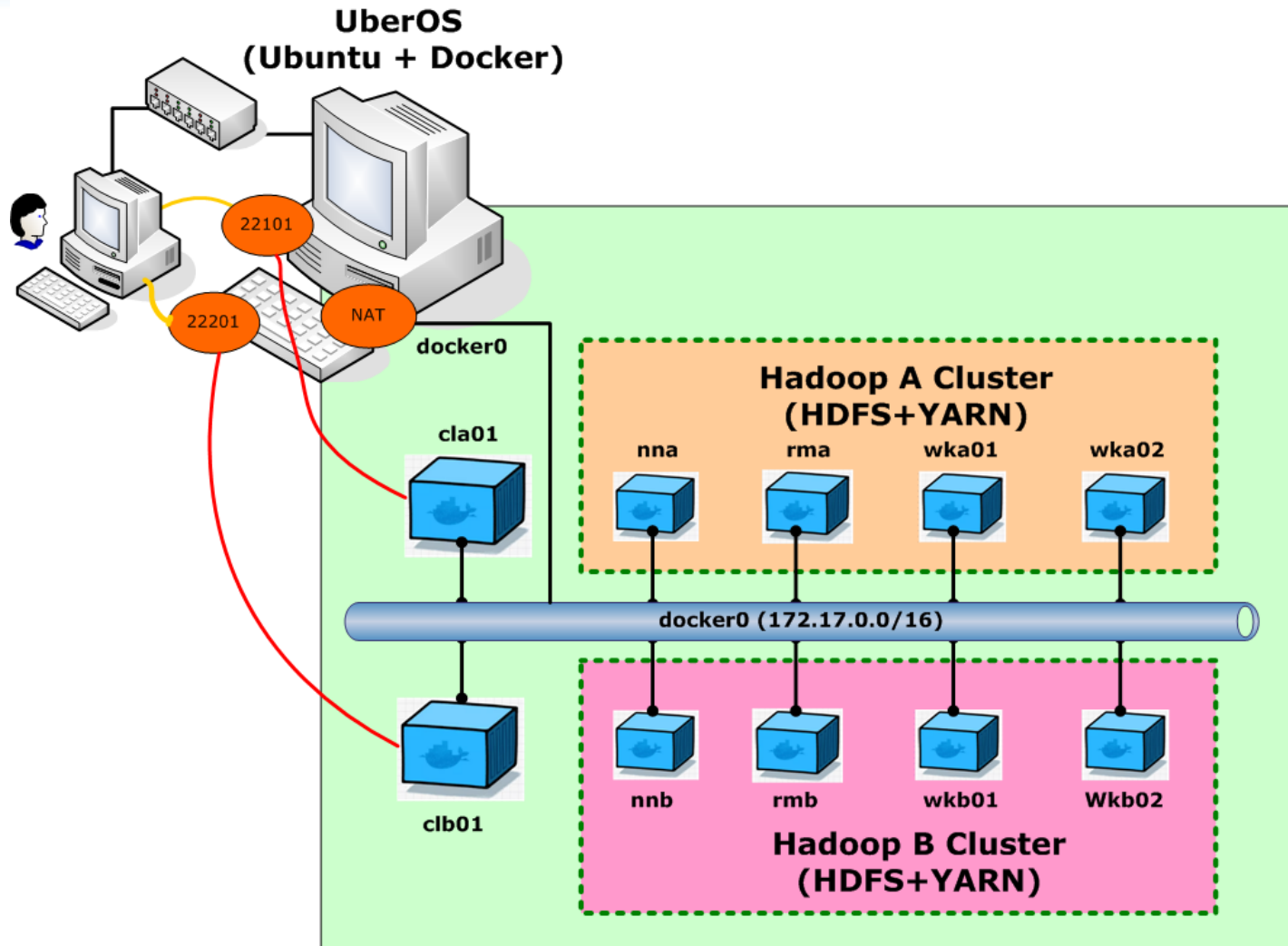


資料湖生態系統



資料湖生態系統架構圖



生成資料湖貨櫃主機

\$ **dkls a**

Docker Utility 0.3.0 (2016/08/02)

[Container]

[Images]

dafu/worker	272	6fa11bb3425a	39 hours ago	922.4 MB
-------------	-----	--------------	--------------	----------

\$ **dkcreate a**

yes/no : **yes**

cla00 created : dsa00 dsa001

cla01 created : dsa01

nna created

rma created

wka01 created

wka02 created

啟動資料湖貨櫃主機

```
$ dkstart a
```

```
cla00 starting
```

```
  java version "1.8.0_101"
```

```
  Scala compiler version 2.9.2 -- Copyright 2002-2011, LAMP/EPFL
```

```
  CVBG:22100->172.17.2.10:22
```

```
cla01 starting
```

```
  java version "1.8.0_101"
```

```
  Scala compiler version 2.9.2 -- Copyright 2002-2011, LAMP/EPFL
```

```
  CVBG:22101->172.17.2.11:22
```

```
nna starting
```

```
  java version "1.8.0_101"
```

```
  Scala compiler version 2.9.2 -- Copyright 2002-2011, LAMP/EPFL
```

```
rma starting
```

```
  java version "1.8.0_101"
```

```
  Scala compiler version 2.9.2 -- Copyright 2002-2011, LAMP/EPFL
```

```
wka01 starting
```

```
  java version "1.8.0_101"
```

```
  Scala compiler version 2.9.2 -- Copyright 2002-2011, LAMP/EPFL
```

```
wka02 starting
```

```
  java version "1.8.0_101"
```

```
  Scala compiler version 2.9.2 -- Copyright 2002-2011, LAMP/EPFL
```

檢視資料湖貨櫃主機

```
$ dkls a
```

```
Docker Utility 0.3.0 (2016/08/02)
```

```
[Container]
```

```
-----  
wka02(f12bc726f840) 172.17.8.11 Running ()  
wka01(b25b26c56220) 172.17.8.10 Running ()  
rma(73b08edc6ced) 172.17.6.12 Running ()  
nna(c3e07b91b21d) 172.17.6.10 Running ()  
cla01(3c7c4a8404a8) 172.17.2.11 Running (CVBG:22101->cla01:22, user:dsa01)  
cla00(5b00fe2aa5e6) 172.17.2.10 Running (CVBG:22100->cla00:22, user:dsa00)
```

```
[Images]
```

```
-----  
dafu/worker      272          6fa11bb3425a    3 days ago    922.4 MB
```

格式化與啟動 HDFS 分散檔案系統

```
$ formathdfs a ring
```

```
format (yes/no) yes
```

```
HDFS(nna) format ok
```

```
$ starthdfs a
```

```
Cluster Type = small
```

```
starting namenode, logging to /tmp/hadoop-bigred-namenode-nna.out
```

```
starting secondarynamenode, logging to /tmp/hadoop-bigred-  
secondarynamenode-nna.out
```

```
starting datanode, logging to /tmp/hadoop-bigred-datanode-wka01.out
```

```
starting datanode, logging to /tmp/hadoop-bigred-datanode-wka02.out
```

```
$ hdfs dfs -ls -d /
```

```
drwxr-xr-x  - bigred bigboss          0 1970-01-01 08:00 /
```

關閉 HDFS 與資料湖貨櫃主機

```
$ stophdfs a
```

```
stopping namenode  
stopping secondarynamenode  
stopping datanode  
stopping datanode
```

```
$ dkstop a
```

```
cla00 Exiting  
CVBG:22100->172.17.2.10:22 deleted
```

```
cla01 Exiting  
CVBG:22101->172.17.2.11:22 deleted
```

```
nna Exiting  
rma Exiting  
wka01 Exiting  
wka02 Exiting
```

啟動與檢視 Hadoop 核心系統

```
$ starthd a
```

```
[Cluster A]
```

```
start Application Container ok
```

```
start HDFS ok
```

```
start YARN ok
```

```
$ dkls a
```

```
Docker Utility 0.3.0 (2016/08/02)
```

```
[Container]
```

```
-----  
wka02(90ff497c9751) 172.17.8.11 Running ( NodeManager DataNode )  
wka01(d5b3b0cb8069) 172.17.8.10 Running ( DataNode NodeManager )  
rma(60d55bcbaa3f) 172.17.6.12 Running ( ResourceManager JobHistoryServer )  
nna(fddbe398599c) 172.17.6.10 Running ( NameNode SecondaryNameNode )  
cla01(9b7b531c29f1) 172.17.2.11 Running (CVBG:22101->cla01:22, user:dsa01 )  
cla00(18b48a7d2d79) 172.17.2.10 Running (CVBG:22100->cla00:22, user:dsa00 dsa000)
```

```
[Images]
```

```
-----  
dafu/worker      272      6f4276845356      32 hours ago      976.2 MB
```


關閉 Hadoop 核心系統

```
$ stophd a
```

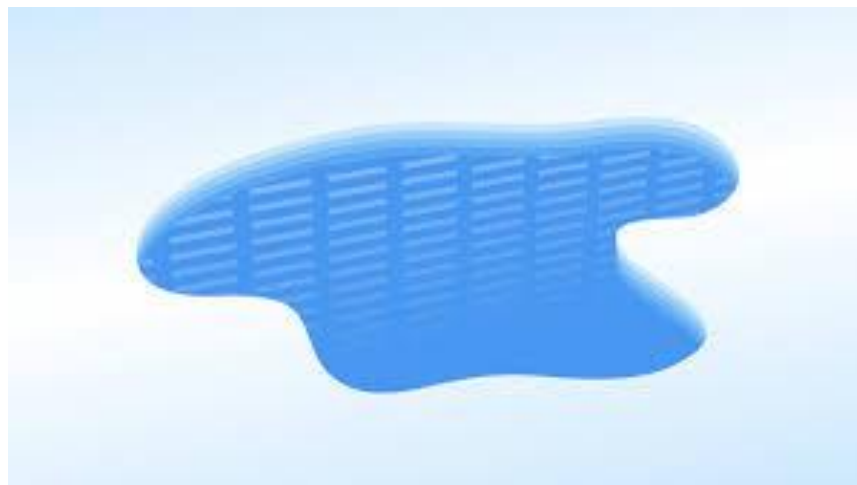
```
[Cluster A]
```

```
stop YARN ok
```

```
stop HDFS ok
```

```
stop Application Container ok
```

資料湖生態系統設定



資料湖生態系統設定目錄結構

```
$ tree -L 2 /opt/conf/
```

```
/opt/conf/
```

```
|— A
|   |— cluster (系統架構設定檔)
|   |— large
|   |— medium
|   |— small
|— B
|   |— cluster (系統架構設定檔)
|   |— large
|   |— medium
|   |— small
```

資料湖生態系統架構設定檔

```
$ cat /opt/conf/A/cluster
# clustertype=small
# netmask=255.255.0.0
# gateway=172.17.0.1
# nameserver=168.95.1.1
# DNAT=ens32

127.0.0.1 localhost

# [Cluster A - Client]
# A.CVBG.CLIENT.HOSTS
172.17.2.10 cla00 # port=22100, user=dsa00
172.17.2.11 cla01 # port=22101, user=dsa01

# A.LA.CLIENT.HOSTS
172.18.2.50 cla50 # port=22150, user=dsa50
172.18.2.51 cla51 # port=22151, user=dsa51
```

資料湖生態系統架構設定檔

[Cluster A - HDFS]

A.CVBG.HDFS.HOSTS

172.17.6.10 nna # name node, secondary namenode

172.17.8.10 wka01 # data node

172.17.8.11 wka02 # data node

A.LA.HDFS.HOSTS

172.18.8.50 wka50 # data node

172.18.8.51 wka51 # data node

[Cluster A - YARN]

A.CVBG.YARN.HOSTS

172.17.6.12 rma # resource manager, job history server

172.17.8.10 wka01 # node manager

172.17.8.11 wka02 # node manager

A.LA.YARN.HOSTS

172.18.8.50 wka50 # node manager

172.18.8.51 wka51 # node manager

Hadoop 系統設定目錄

```
$ tree /opt/conf/A/small
```

```
/opt/conf/A/small
```

```
::
```

```
|— core-site.xml  
|— hadoop-env.sh  
|— hdfs-site.xml
```

```
::
```

```
|— mapred-site.xml
```

```
::
```

```
|— yarn-env.sh  
|— yarn-site.xml
```