

Experimental report of Nanchang University

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class: Computer science and technology154

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course: Linux Programming

Project name

Build openstack and Share it

Purpose

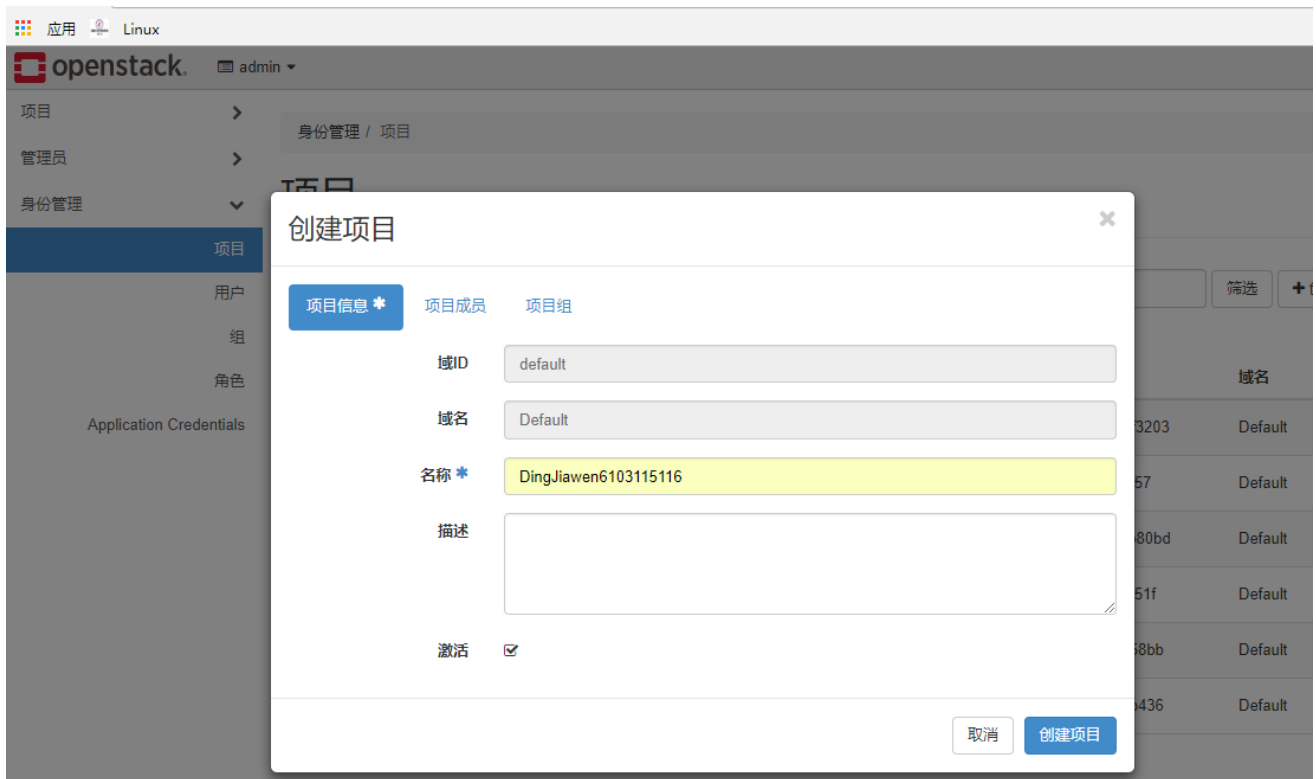
Deploy an openstack platform to build an instance (host) on the platform, and then deploy a service on the host.

Experimental steps

- Deploying openstack services through devstack

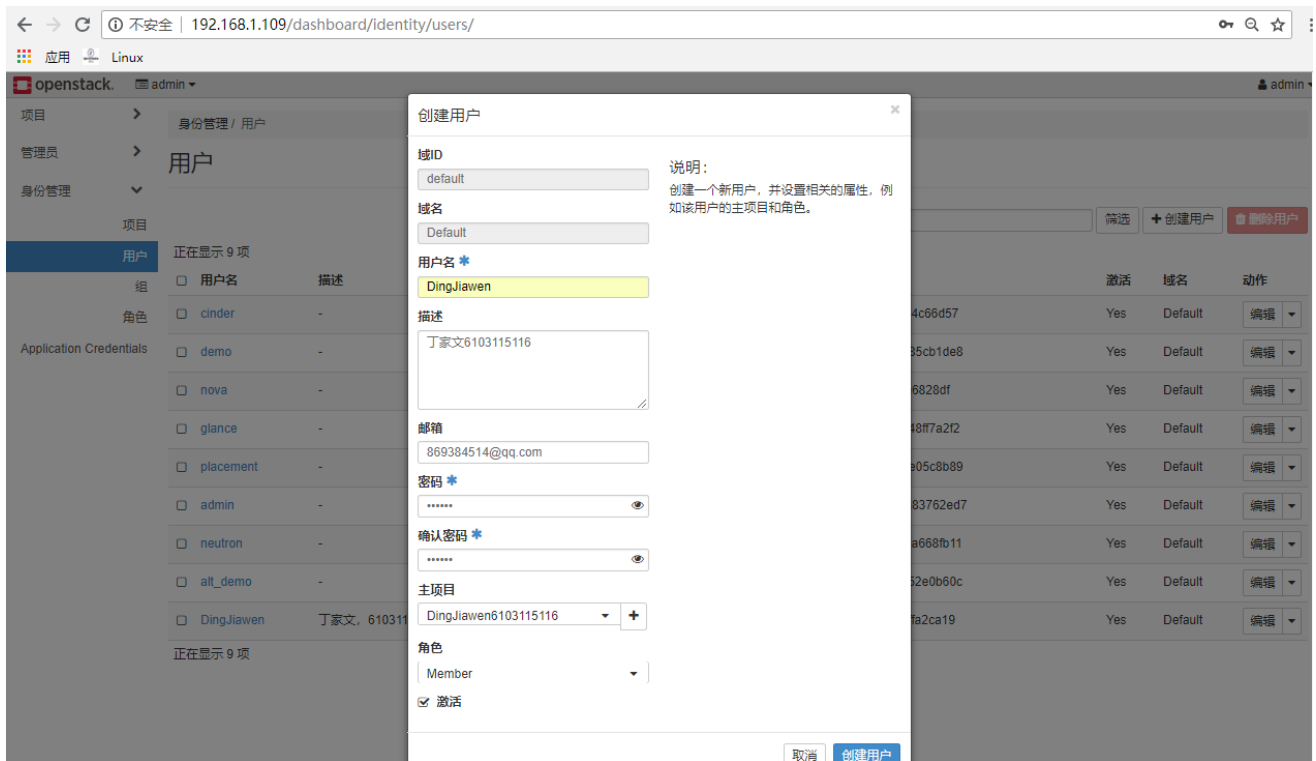


- Create a project



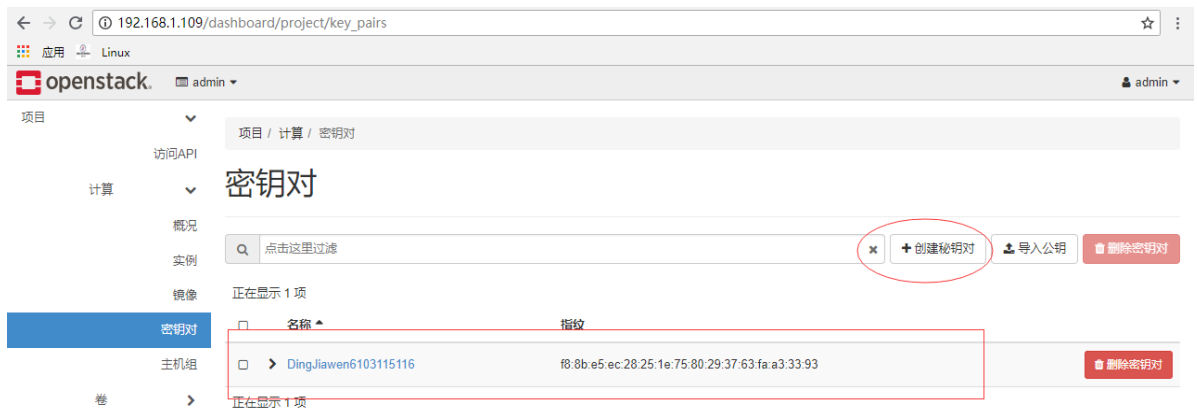
- Create a user





- Create key pair

- Created through system



- Created through PuTTYgen

PuTTY Key Generator

File Key Conversions Help

Key

Public key for pasting into OpenSSH authorized_keys file:

```
ssh-rsa
AAAAB3NzaC1yc2EAAAABJQAAQEAq4rCcQ331f/9uBPIO1cwoYEDYXeGsOgPaacQ
TsT3+1tjycv9i8rFcipeulAGuJwwNH6wp5gPAty0AIVHy9aT9sE0qnHCBkgN1VREwmO
sY0Z6LNfLQtFS2eT
+RsH4ZKG1WC3OOPnnI5cKF3itxDZFyPBpciCvtBVUj6IWW5Z/2/ctiJ9g4IXsb1ojNjN
```

Key fingerprint: ssh-rsa 2048 5a:07:94:3d:b9:be:13:1b:20:3b:90:23:20:2a:20:91

Key comment: rsa-key-20180513

Key passphrase:

Confirm passphrase:

Actions

Generate a public/private key pair **Generate**

Load an existing private key file **Load**

Save the generated key **Save public key** **Save private key**

Parameters

Type of key to generate:

☒ RSA ☐ DSA ☐ ECDSA ☐ ED25519 ☐ SSH-1 (RSA)

Number of bits in a generated key: 2048

- Create an instance

- details

创建实例

详情

源 *

实例类型 *

网络

网络接口

安全组

密钥对

配置

服务器组

scheduler hint

元数据

请提供实例的主机名，欲部署的可用区域和数量。增大数量以创建多个同样配置的实例。

实例名称 * DingJiawen6103115116

描述 none

可用域 nova

数量 * 1

实例总计 (10 Max)

10%

0 当前用量
1 已添加
9 剩余量

取消 返回 下一步 创建实例

- source

详情

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scheduler hint

元数据

类型管理实例的计算、内存和存储容量的大小。

已分配

名称	虚拟内核	内存	磁盘总计	根磁盘	临时磁盘	公有	
ds1G	1	1 GB	10 GB	10 GB	0 GB	是	↓

▼ 可用配额 11

选择一个

Q 点击这里过滤

名称	虚拟内核	内存	磁盘总计	根磁盘	临时磁盘	公有	
m1.tiny	1	512 MB	1 GB	1 GB	0 GB	是	↑
m1.small	1	2 GB	20 GB	20 GB	0 GB	是	↑
m1.medium	2	4 GB	40 GB	40 GB	0 GB	是	↑
m1.large	4	8 GB	80 GB	80 GB	0 GB	是	↑
m1.nano	1	64 MB	0 GB	0 GB	0 GB	是	↑
m1.xlarge	8	16 GB	160 GB	160 GB	0 GB	是	↑

o instance type

详情

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▼ 可用配额 11

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名称	虚拟内核	内存	磁盘总计	根磁盘	临时磁盘	公有	
m1.tiny	1	512 MB	1 GB	1 GB	0 GB	是	↑
m1.small	1	2 GB	20 GB	20 GB	0 GB	是	↑
m1.medium	2	4 GB	40 GB	40 GB	0 GB	是	↑
m1.large	4	8 GB	80 GB	80 GB	0 GB	是	↑
m1.nano	1	64 MB	0 GB	0 GB	0 GB	是	↑
m1.xlarge	8	16 GB	160 GB	160 GB	0 GB	是	↑

o successful

← → ↻ 192.168.1.109/dashboard/project/instances/ ☆ ⋮

应用 Linux

openstack. admin

admin

项目

访问API

计算

概况

实例

镜像

密钥对

主机组

卷

网络

管理员

身份管理

项目 / 计算 / 实例

实例

正在显示 1 项

实例 ID = 筛选 创建实例 删除实例 更多操作

实例名称	镜像名称	IP 地址	实例类型	密钥对	状态	可用域	任务	电源状态	创建后的时间	动作
Din gJl aw en6 103 115 116	172.24.4.8 2001:db8::c	ds1G	ssh	运行	🔊	nova	无	运行中	3 minutes	创建快照

正在显示 1 项

- Assign IP for an instance

管理浮动IP的关联

成功: 分配到的浮动IP 172.24.4.11.

IP 地址 * 请为选中的实例或端口选择要绑定的IP地址。

172.24.4.11 +

待连接的端口 * 无可端口

取消 关联

172.24.4.8
2001:db8::c

ds1G

ssh

运行

🔊

nova

无

运行中

3 minutes

创建快照

- Details of the instance

192.168.1.109/dashboard/project/instances/5e25c0ae-dd42-4462-8be7-f54c57be5fa5/

应用 Linux Openstack创建实例

openstack admin admin

项目 / 计算 / 实例 / DingJiawen6103115116

DingJiawen6103115116

创建快照

概况 接口 日志 控制台 操作日志

名称	DingJiawen6103115116
描述	none
ID	5e25c0ae-dd42-4462-8be7-f54c57be5fa5
状态	运行
锁定	False
可用域	nova
已创建	May 10, 2018, 12:05 p.m.
创建后的时间	2 hours, 30 minutes
主机	ncuwen

规格

实例类型名称	ds1G
实例类型 ID	d2
内存	1GB
VCPU数量	1 VCPU
磁盘	10GB

IP地址

Public	172.24.4.8, 2001:db8::c, 172.24.4.7, 2001:db8::3
--------	--

- Network topology

192.168.1.109/dashboard/project/network_topology/

应用 Linux Openstack创建实例

openstack admin admin

项目 / 网络 / 网络拓扑

网络拓扑

创建实例 + 创建网络 + 新建路由

拓扑 图表

在拓扑图上上下滚动您的鼠标/触控板来调整画布大小，单击拓扑图后的空白并拖拽来平移画布。

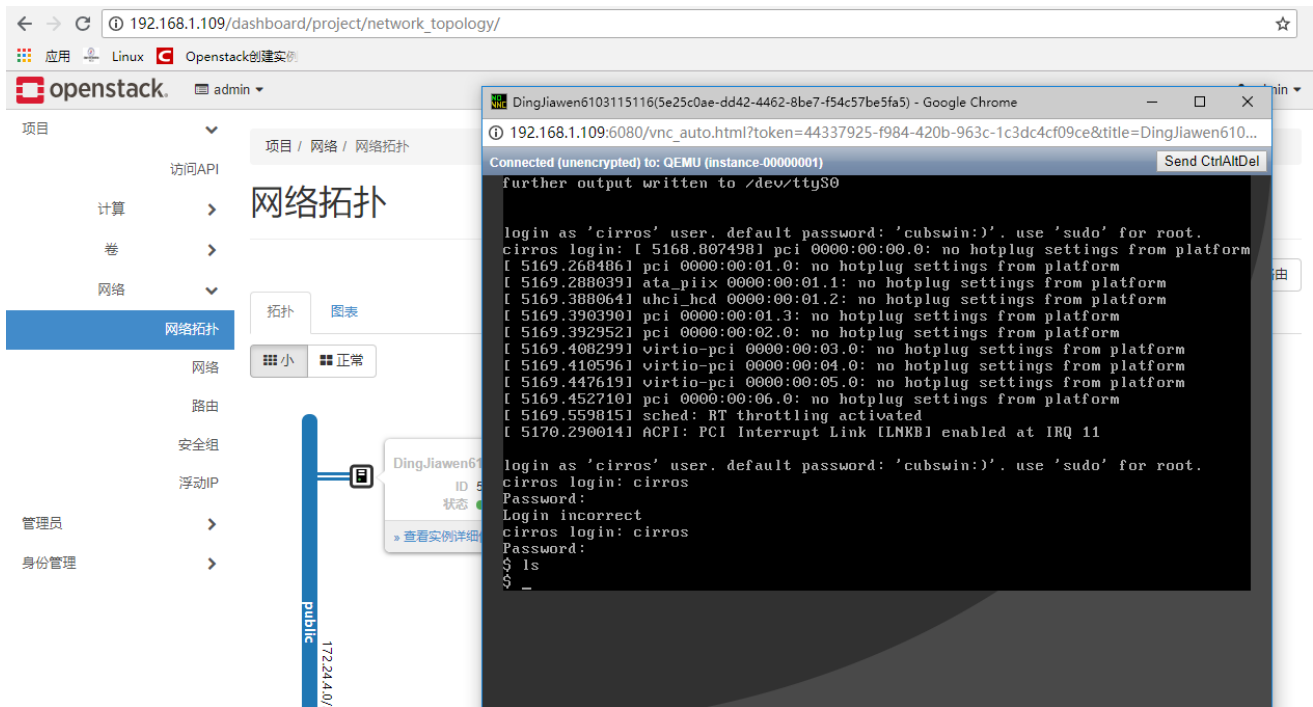
切换标签 切换网络折叠模式 Center Topology

网络 路由 安全组 浮动IP

管理员 身份管理



- Boarding the host



• Explain :

Since the computer can not carry the pressure of openstack service, the following experiments are carried out by using Docker in Windows environment.

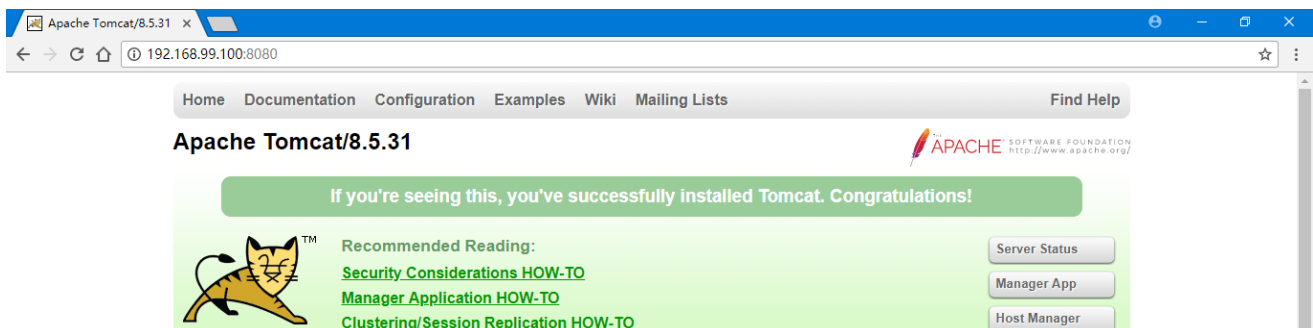
• Pull Tomcat(already)

```
86938@ncuwen MINGW64 ~
$ docker pull tomcat
Using default tag: latest
latest: Pulling from library/tomcat
Digest: sha256:bb46fa03a24e949afe92ecac99374d9bfad5d99c05e4855f91ccb437124aa13f
Status: Image is up to date for tomcat:latest
```

• run it

```
86938@ncuwen MINGW64 ~
$ docker run --name tomcat -p 8080:8080 -v E:/Linux.war -d tomcat
72c0b641256dc57d308b163514af84132354415bd91c05bef20eff7af98313b7
```

• Display



- **Deploying my own project**

- Enter the container to view the directory structure

```
86938@ncuwen MINGW64 ~  
$ docker exec -it tomcat /bin/sh  
# ls  
LICENSE NOTICE RELEASE-NOTES RUNNING.txt bin conf include lib logs native-jni-lib temp webapps work  
# _
```

- Upload local files to the container

```
86938@ncuwen MINGW64 ~  
$ docker cp Linux.war tomcat:/usr/local/tomcat/tomcat/webapps  
Error response from daemon: Could not find the file /usr/local/tomcat/tomcat in container tomcat  
  
86938@ncuwen MINGW64 ~  
$ docker cp Linux.war tomcat:/usr/local/tomcat/webapps  
  
86938@ncuwen MINGW64 ~  
$ docker exec -it tomcat /bin/sh  
# cd /  
# cd /usr/local/tomcat/webapps  
# ls  
Linux Linux.war ROOT docs examples host-manager manager  
# _
```

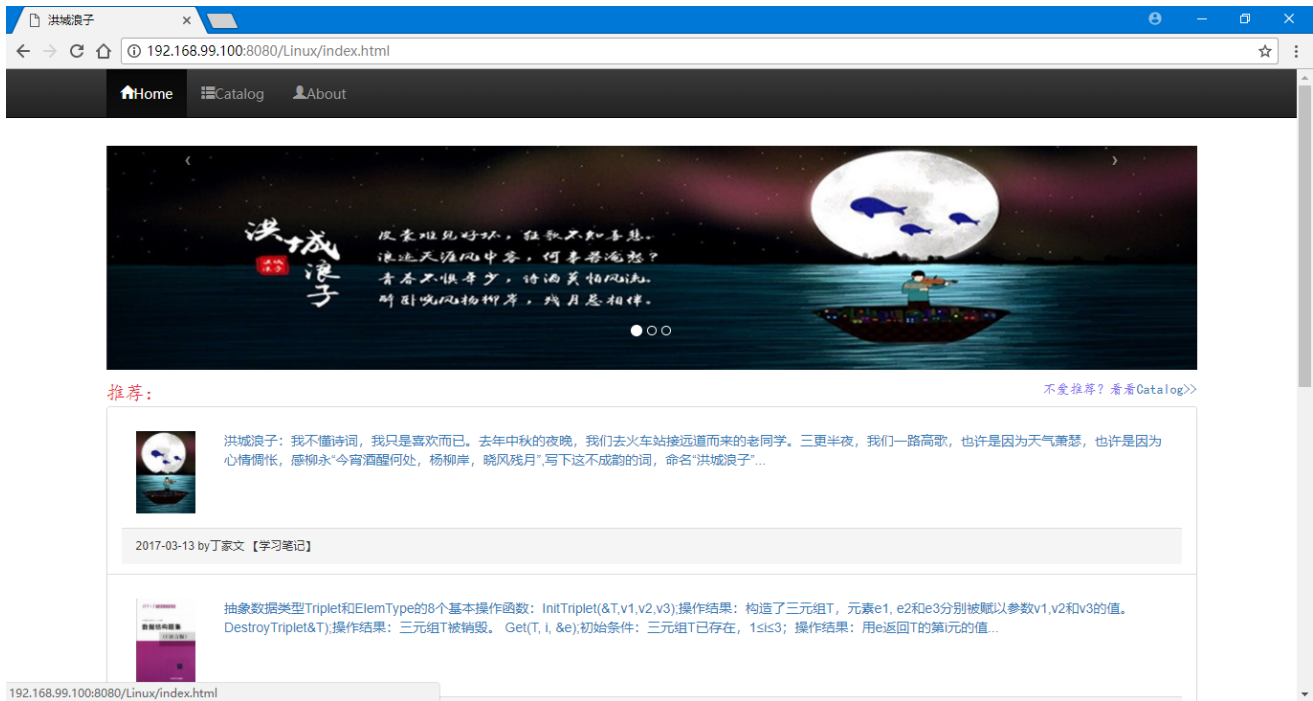
- Explain

- Local host directory : C:\Users\86938
- container : /usr/local/tomcat/webapps

- **ReStart Tomcat**

```
# cd ..  
# ls  
LICENSE RELEASE-NOTES bin include logs temp work  
NOTICE RUNNING.txt conf lib native-jni-lib webapps  
# cd bin  
# ls  
bootstrap.jar configtest.sh startup.sh  
catalina-tasks.xml daemon.sh tomcat-juli.jar  
catalina.sh digest.sh tool-wrapper.sh  
commons-daemon-native.tar.gz setclasspath.sh version.sh  
commons-daemon.jar shutdown.sh  
# ./shutdown.sh  
Using CATALINA_BASE: /usr/local/tomcat  
Using CATALINA_HOME: /usr/local/tomcat  
Using CATALINA_TMPDIR: /usr/local/tomcat/temp  
Using JRE_HOME: /docker-java-home/jre  
Using CLASSPATH: /usr/local/tomcat/bin/bootstrap.jar:/usr/local/tomcat/bin/tomcat-juli.jar  
#  
86938@ncuwen MINGW64 ~  
$ docker exec -it tomcat /bin/sh  
Error response from daemon: Container 72c0b641256dc57d308b163514af84132354415bd91c05bef20eff7af98313b7 is not running  
  
86938@ncuwen MINGW64 ~  
$ docker start tomcat  
tomcat
```

- **Display**



Reflection

Openstack is build a cloud platform (public or private) on the server or personal computer , and then on this cloud platform, many instances (hosts) can be created, and a IP is allocated for each instance, within the network, the services deployed on this instance can be accessed through the IP.

Docker can also create a virtual host through a pull image, and the service on the host can also be accessed through the IP allocated by the Docker.

Reference

【Docker】: <https://www.docker.com/>

【Tomcat in Docker】: https://blog.csdn.net/leafage_m/article/details/72081987

【File transfer from localhost to docker】: https://blog.csdn.net/leafage_m/article/details/72082011

【Using Volume for file transfer in the host and Docker containers】: https://blog.csdn.net/Leafage_M/article/details/78575205