Docker安装部署及应用

环境准备：centos7.4虚拟机3台，搭建好yum源（development&extras），关闭防火墙、SELinux，清空iptables规则

地址规划：

Node01 192.168.1.1 node01 docker 联网

Node02 192.168.1.2 node02 docker 联网

Node03 192.168.1.3 node03 repo 可不联网

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[root@node01 ~]# yum clean all; yum repolist

源标识 源名称 状态

development dvd 9,911

extras extras 76

repolist: 9,987

[root@node01 ~]# yum -y install docker

[root@node01 ~]# iptables -nL FORWARD

Chain FORWARD (policy ACCEPT)

target prot opt source destination

#如果是1.12+版本的docker默认被修改成drop，所以需要修改service文件

[root@node01 ~]# sed -ri '/ExecReload/i\ExecStartPost=/sbin/iptables -P FORWARD ACCEPT' /lib/systemd/system/docker.service

[root@node01 ~]# cat /lib/systemd/system/docker.service

…

ExecStartPost=/sbin/iptables -P FORWARD ACCEPT

ExecReload=/bin/kill -s HUP $MAINPID

…

[root@node01 ~]# echo "net.ipv4.ip\_forward=1" >> /etc/sysctl.conf

[root@node01 ~]# sysctl -p

net.ipv4.ip\_forward = 1

[root@node01 ~]# cat /proc/sys/net/ipv4/ip\_forward

1

[root@node01 ~]#

[root@node01 ~]# systemctl daemon-reload

[root@node01 ~]# systemctl enable docker

Created symlink from /etc/systemd/system/multi-user.target.wants/docker.service to /usr/lib/systemd/system/docker.service.

[root@node01 ~]# systemctl start docker

[root@node01 ~]# systemctl is-active docker

active

[root@node01 ~]# ifconfig docker0 | head -2

docker0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500

inet 172.17.0.1 netmask 255.255.0.0 broadcast 0.0.0.0

[root@node01 ~]#

#node02同步操作

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#镜像搜索 默认镜像站点<http://hub.docker.com>

[root@node01 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

[root@node01 ~]# docker search busybox

INDEX NAME DESCRIPTION STARS OFFICIAL AUTOMATED

docker.io docker.io/busybox Busybox base image. 1884 [OK]

docker.io docker.io/progrium/busybox 71 [OK]

docker.io docker.io/radial/busyboxplus Full-chain, Internet enabled, busybox made... 30 [OK]

…

[root@node01 ~]# docker pull docker.io/busybox

Using default tag: latest

Trying to pull repository docker.io/library/busybox ...

latest: Pulling from docker.io/library/busybox

d9cbbca60e5f: Pull complete

Digest: sha256:836945da1f3afe2cfff376d379852bbb82e0237cb2925d53a13f53d6e8a8c48c

[root@node01 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

docker.io/busybox latest 78096d0a5478 32 hours ago 1.22 MB

[root@node01 ~]#

#镜像备份与恢复

[root@node01 ~]# docker save docker.io/busybox:latest -o busybox.tar

[root@node01 ~]# ls busybox.tar

busybox.tar

[root@node01 ~]# docker rmi docker.io/busybox

Untagged: docker.io/busybox:latest

Untagged: docker.io/busybox@sha256:836945da1f3afe2cfff376d379852bbb82e0237cb2925d53a13f53d6e8a8c48c

Deleted: sha256:78096d0a54788961ca68393e5f8038704b97d8af374249dc5c8faec1b8045e42

Deleted: sha256:1079c30efc82c9ad970f01c9a732115b34156fcfd77daf69d65e914bb1de8196

[root@node01 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

[root@node01 ~]# docker load -i busybox.tar

1079c30efc82: Loading layer [==================================================>] 1.437 MB/1.437 MB

Loaded image: docker.io/busybox:latest ] 32.77 kB/1.437 MB

[root@node01 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

docker.io/busybox latest 78096d0a5478 32 hours ago 1.22 MB

[root@node01 ~]#

[root@node01 ~]# scp busybox.tar 192.168.1.2:/root

[root@node02 ~]# ls busybox.tar

busybox.tar

[root@node02 ~]# docker load -i busybox.tar

1079c30efc82: Loading layer [==================================================>] 1.437 MB/1.437 MB

Loaded image: docker.io/busybox:latest ] 32.77 kB/1.437 MB

[root@node02 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

docker.io/busybox latest 78096d0a5478 32 hours ago 1.22 MB

[root@node02 ~]#

#导入已有镜像

[root@node01 ~]# rm -rf busybox.tar

[root@node01 ~]# tar -xf docker\_imgs.tar.gz

[root@node01 ~]# rm -rf \*.gz

[root@node01 ~]# ls

centos.tar nginx.tar redis.tar registry.tar ubuntu.tar

[root@node01 ~]# for i in \*.tar; do docker load -i $i;done

#node02同步操作

[root@node01 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

docker.io/busybox latest 78096d0a5478 33 hours ago 1.22 MB

docker.io/redis latest 82629e941a38 15 months ago 94.98 MB

docker.io/nginx latest 42b4762643dc 15 months ago 109.2 MB

docker.io/ubuntu latest 20bb25d32758 15 months ago 87.47 MB

docker.io/registry latest 116995fd6624 16 months ago 25.76 MB

docker.io/centos latest 76d6bc25b8a5 19 months ago 199.7 MB

#docker容器操作

#run=创建+启动+进入

[root@node01 ~]# docker run -it docker.io/centos:latest /bin/bash

[root@74dd01b5a67a /]# ps -ef

UID PID PPID C STIME TTY TIME CMD

root 1 0 1 06:26 ? 00:00:00 /bin/bash

root 13 1 0 06:26 ? 00:00:00 ps -ef

[root@74dd01b5a67a /]# ping -c 2 192.168.1.254

PING 192.168.1.254 (192.168.1.254) 56(84) bytes of data.

64 bytes from 192.168.1.254: icmp\_seq=1 ttl=63 time=0.251 ms

64 bytes from 192.168.1.254: icmp\_seq=2 ttl=63 time=0.222 ms

--- 192.168.1.254 ping statistics ---

2 packets transmitted, 2 received, 0% packet loss, time 1000ms

rtt min/avg/max/mdev = 0.222/0.236/0.251/0.021 ms

[root@74dd01b5a67a /]# rm -rf /etc/yum.repos.d/\*

[root@74dd01b5a67a /]# vi /etc/yum.repos.d/dvd.repo

[root@74dd01b5a67a /]# cat /etc/yum.repos.d/dvd.repo

[development]

name=dvd

baseurl=ftp://192.168.1.254/iso/centos/

enabled=1

gpgcheck=0

[root@74dd01b5a67a /]# yum clean all; yum repolist

repolist: 9911

[root@74dd01b5a67a /]# yum -y install net-tools iproute vim psmisc bash-completion

[root@74dd01b5a67a /]# ifconfig eth0 | head -2

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 172.17.0.2 netmask 255.255.0.0 broadcast 0.0.0.0

[root@74dd01b5a67a /]# ping -c 2 192.168.1.1

PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data.

64 bytes from 192.168.1.1: icmp\_seq=1 ttl=64 time=0.092 ms

64 bytes from 192.168.1.1: icmp\_seq=2 ttl=64 time=0.080 ms

--- 192.168.1.1 ping statistics ---

2 packets transmitted, 2 received, 0% packet loss, time 999ms

rtt min/avg/max/mdev = 0.080/0.086/0.092/0.006 ms

[root@74dd01b5a67a /]# exit

exit

[root@node01 ~]#

#镜像信息查看

[root@node01 ~]# docker history docker.io/centos:latest

IMAGE CREATED CREATED BY SIZE COMMENT

76d6bc25b8a5 19 months ago /bin/sh -c #(nop) CMD ["/bin/bash"] 0 B

<missing> 19 months ago /bin/sh -c #(nop) LABEL org.label-schema.sch 0 B

<missing> 19 months ago /bin/sh -c #(nop) ADD file:8f4b3be0c1427b158f 199.7 MB

[root@node01 ~]# docker inspect docker.io/centos:latest

[

{

"Id": "sha256:76d6bc25b8a5685072a1a99d9ac7c2e52dc3070081c872034a1889ca2d4bcf8c",

"RepoTags": [

"docker.io/centos:latest"

],

"RepoDigests": [],

"Parent": "",

"Comment": "",

"Created": "2018-10-09T18:20:34.032588496Z",

"Container": "88a04a5d6cdb307c049d5a4053fbb504c0f956a2430a5f58bced4aea06c59c2e",

"ContainerConfig": {

"Hostname": "88a04a5d6cdb",

"Domainname": "",

"User": "",

"AttachStdin": false,

"AttachStdout": false,

"AttachStderr": false,

"Tty": false,

"OpenStdin": false,

"StdinOnce": false,

"Env": [

"PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"

],

"Cmd": [

"/bin/sh",

"-c",

"#(nop) ",

"CMD [\"/bin/bash\"]"

],

"ArgsEscaped": true,

"Image": "sha256:378a8d7f139218b49432272778f608fa7c8dba7c6943d6a95042f2dd8b7b77cd",

"Volumes": null,

"WorkingDir": "",

"Entrypoint": null,

"OnBuild": null,

"Labels": {

"org.label-schema.schema-version": "= 1.0 org.label-schema.name=CentOS Base Image org.label-schema.vendor=CentOS org.label-schema.license=GPLv2 org.label-schema.build-date=20180531"

}

},

"DockerVersion": "17.06.2-ce",

"Author": "",

"Config": {

"Hostname": "",

"Domainname": "",

"User": "",

"AttachStdin": false,

"AttachStdout": false,

"AttachStderr": false,

"Tty": false,

"OpenStdin": false,

"StdinOnce": false,

"Env": [

"PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"

],

"Cmd": [

"/bin/bash"

],

"ArgsEscaped": true,

"Image": "sha256:378a8d7f139218b49432272778f608fa7c8dba7c6943d6a95042f2dd8b7b77cd",

"Volumes": null,

"WorkingDir": "",

"Entrypoint": null,

"OnBuild": null,

"Labels": {

"org.label-schema.schema-version": "= 1.0 org.label-schema.name=CentOS Base Image org.label-schema.vendor=CentOS org.label-schema.license=GPLv2 org.label-schema.build-date=20180531"

}

},

"Architecture": "amd64",

"Os": "linux",

"Size": 199671138,

"VirtualSize": 199671138,

"GraphDriver": {

"Name": "devicemapper",

"Data": {

"DeviceId": "4",

"DeviceName": "docker-253:1-5242952-4b1d8b54a73fb26cfeabf88720affe9ab8ecc3c3f63494724dc6ed53498d7a09",

"DeviceSize": "10737418240"

}

},

"RootFS": {

"Type": "layers",

"Layers": [

"sha256:bcc97fbfc9e1a709f0eb78c1da59caeb65f43dc32cd5deeb12b8c1784e5b8237"

]

}

}

]

[root@node01 ~]#

[root@node01 ~]# docker inspect -f {{.Config.Cmd}} docker.io/nginx:latest

[nginx -g daemon off;]

#镜像打标签

[root@node01 ~]# docker tag docker.io/busybox:latest docker.io/busybox:v1

[root@node01 ~]# docker tag docker.io/busybox:latest xxhh:latest

[root@node01 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

docker.io/busybox latest 78096d0a5478 34 hours ago 1.22 MB

docker.io/busybox v1 78096d0a5478 34 hours ago 1.22 MB

xxhh latest 78096d0a5478 34 hours ago 1.22 MB

docker.io/redis latest 82629e941a38 15 months ago 94.98 MB

docker.io/nginx latest 42b4762643dc 15 months ago 109.2 MB

docker.io/ubuntu latest 20bb25d32758 15 months ago 87.47 MB

docker.io/registry latest 116995fd6624 16 months ago 25.76 MB

docker.io/centos latest 76d6bc25b8a5 19 months ago 199.7 MB

[root@node01 ~]# docker rmi docker.io/busybox:v1

Untagged: docker.io/busybox:v1

[root@node01 ~]# docker rmi xxhh:latest

Untagged: xxhh:latest

[root@node01 ~]#

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#docker进程管理

[root@node01 ~]# docker run -itd docker.io/nginx:latest

133e0d04d2d919778a380bd1afef035a0c161e8fa8776a0f82f7784f5da4c208

[root@node01 ~]# docker ps

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

133e0d04d2d9 docker.io/nginx:latest "nginx -g 'daemon off" 7 seconds ago Up 3 seconds 80/tcp pedantic\_darwin

[root@node01 ~]# docker ps –a #列出所有容器

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

133e0d04d2d9 docker.io/nginx:latest "nginx -g 'daemon off" 9 seconds ago Up 5 seconds 80/tcp pedantic\_darwin

[root@node01 ~]# docker ps -aq

133e0d04d2d9

[root@node01 ~]#

[root@node01 ~]# docker ps -q

133e0d04d2d9

[root@node01 ~]# docker stop 133

133

[root@node01 ~]# docker ps

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

[root@node01 ~]# docker ps -a

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

133e0d04d2d9 docker.io/nginx:latest "nginx -g 'daemon off" 2 minutes ago Exited (0) 7 seconds ago pedantic\_darwin

[root@node01 ~]# docker start $(docker ps -aq)

133e0d04d2d9

[root@node01 ~]# docker ps

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

133e0d04d2d9 docker.io/nginx:latest "nginx -g 'daemon off" 2 minutes ago Up 4 seconds 80/tcp pedantic\_darwin

[root@node01 ~]#

[root@node01 ~]# docker inspect -f {{.NetworkSettings.IPAddress}} 133

172.17.0.2

[root@node01 ~]# docker top 133

UID PID PPID C STIME TTY TIME CMD

root 4890 4875 0 15:26 pts/1 00:00:00 nginx: master process nginx -g daemon off;

101 4911 4890 0 15:26 pts/1 00:00:00 nginx: worker process

[root@node01 ~]# docker inspect -f {{.NetworkSettings.IPAddress}} 133

172.17.0.2

[root@node01 ~]#

[root@node01 ~]# docker rm $(docker stop $(docker ps -aq))

133e0d04d2d9

[root@node01 ~]#

#切换宿主机和容器

[root@node01 ~]# docker run -itd docker.io/centos:latest /bin/bash

102cd92a2abbc0732f5af9b53e0af3283a9d70a530088605e44570d61829b71a

[root@node01 ~]# docker ps -q

102cd92a2abb

[root@node01 ~]# docker exec -it 102 /bin/bash

[root@102cd92a2abb /]# rm -rf /etc/yum.repos.d/\*

[root@102cd92a2abb /]# vi /etc/yum.repos.d/dvd.repo

[root@102cd92a2abb /]# cat /etc/yum.repos.d/dvd.repo

[development]

name=dvd

enabled=1

gpgcheck=0

baseurl=ftp://192.168.1.254/iso/centos/

[root@102cd92a2abb /]# yum makecache &> /dev/null

[root@102cd92a2abb /]# yum -y install net-tools iproute psmisc vim bash-completion

[root@node01 ~]# docker exec -it 102 /bin/bash

[root@102cd92a2abb /]# pstree -p

bash(1)

[root@102cd92a2abb /]# ps -ef

UID PID PPID C STIME TTY TIME CMD

root 1 0 0 07:47 ? 00:00:00 /bin/bash

root 82 0 0 08:11 ? 00:00:00 /bin/bash

root 101 82 0 08:11 ? 00:00:00 ps -ef

[root@102cd92a2abb /]# exit

exit

[root@node01 ~]# docker ps -q

102cd92a2abb

[root@node01 ~]# docker attach 102

[root@102cd92a2abb /]# pstree

bash---pstree

[root@102cd92a2abb /]# ps -ef

UID PID PPID C STIME TTY TIME CMD

root 1 0 0 07:47 ? 00:00:00 /bin/bash

root 103 1 0 08:12 ? 00:00:00 ps -ef

[root@102cd92a2abb /]# exit

exit

[root@node01 ~]# docker ps -q

[root@node01 ~]# docker ps -aq

102cd92a2abb

[root@node01 ~]#

#exec和attach的区别在于连接容器的进程，attach连接的是容器的上帝进程，一旦执行exit导致上帝进程死亡，容器也就死亡；exec是由上帝进程新开一个bash进程，所有操作基于新开的bash进程，所以exit容器正常存在

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#自定义镜像

#commit容器方法

[root@node01 ~]# docker ps -aq

[root@node01 ~]# docker run -itd docker.io/centos:latest /bin/bash

64a76cbe333f8456dfa97d8fa31cf152cb3ed1fe90f055061e4c767bc4a7ba36

[root@node01 ~]# docker exec -it 64 /bin/bash

[root@64a76cbe333f /]# rm -rf /etc/yum.repos.d/\*

[root@64a76cbe333f /]# vi /etc/yum.repos.d/dvd.repo

[root@64a76cbe333f /]# cat /etc/yum.repos.d/dvd.repo

[development]

name=dvd

enabled=1

gpgcheck=0

baseurl=ftp://192.168.1.254/iso/centos/

[root@64a76cbe333f /]# yum makecache &> /dev/null

[root@64a76cbe333f /]# yum -y install net-tools bind-utils iproute psmisc vim bash-completion tree

[root@64a76cbe333f /]# ifconfig | head -2

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 172.17.0.2 netmask 255.255.0.0 broadcast 0.0.0.0

[root@64a76cbe333f /]# pstree

Bash

[root@64a76cbe333f /]# yum clean all

[root@64a76cbe333f /]# exit

Exit

[root@node01 ~]# docker commit 64 myos:v1

sha256:48abfad8218446adb489691802dafd773f316496d85933193bbdd9ec5f81fc5c

[root@node01 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

myos v1 48abfad82184 12 seconds ago 400.5 MB

docker.io/busybox latest 78096d0a5478 35 hours ago 1.22 MB

docker.io/redis latest 82629e941a38 15 months ago 94.98 MB

docker.io/nginx latest 42b4762643dc 15 months ago 109.2 MB

docker.io/ubuntu latest 20bb25d32758 15 months ago 87.47 MB

docker.io/registry latest 116995fd6624 16 months ago 25.76 MB

docker.io/centos latest 76d6bc25b8a5 19 months ago 199.7 MB

[root@node01 ~]# docker history docker.io/centos:latest

IMAGE CREATED CREATED BY SIZE COMMENT

76d6bc25b8a5 19 months ago /bin/sh -c #(nop) CMD ["/bin/bash"] 0 B

<missing> 19 months ago /bin/sh -c #(nop) LABEL org.label-schema.sch 0 B

<missing> 19 months ago /bin/sh -c #(nop) ADD file:8f4b3be0c1427b158f 199.7 MB

[root@node01 ~]# docker history myos:v1

IMAGE CREATED CREATED BY SIZE COMMENT

48abfad82184 24 seconds ago /bin/bash 200.8 MB

76d6bc25b8a5 19 months ago /bin/sh -c #(nop) CMD ["/bin/bash"] 0 B

<missing> 19 months ago /bin/sh -c #(nop) LABEL org.label-schema.sch 0 B

<missing> 19 months ago /bin/sh -c #(nop) ADD file:8f4b3be0c1427b158f 199.7 MB

[root@node01 ~]# docker run -itd myos:v1 /bin/bash

2d5561f31d20207cfcd06698b452c94d37cd4c2864a31943c58e2b1a26966a74

[root@node01 ~]# docker exec -it 2d /bin/bash

[root@2d5561f31d20 /]# ifconfig | head -2

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 172.17.0.3 netmask 255.255.0.0 broadcast 0.0.0.0

[root@2d5561f31d20 /]# exit

exit

[root@node01 ~]# docker rm $(docker stop $(docker ps -qa))

2d5561f31d20

64a76cbe333f

[root@node01 ~]#

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#dockerfile方法制作镜像

[root@node01 ~]# mkdir -p files/a

[root@node01 ~]# cd files/a/

[root@node01 a]# touch Dockerfile

[root@node01 a]# cat >> dvd.repo << EOF

> [development]

> name=dvd

> baseurl=ftp://192.168.1.254/iso/centos/

> enabled=1

> gpgcheck=0

> EOF

[root@node01 a]# vim Dockerfile

[root@node01 a]# cat Dockerfile

FROM docker.io/centos:latest

COPY dvd.repo /etc/yum.repos.d/

RUN rm -rf /etc/yum.repos.d/CentOS-\*.repo && \

yum -y install net-tools iproute psmisc vim bash-completion bind-utils && \

yum clean all

[root@node01 a]# docker build -t myos:v2 .

[root@node01 a]# docker images myos

REPOSITORY TAG IMAGE ID CREATED SIZE

myos v2 4c1e5ce2f7eb 10 seconds ago 286.9 MB

myos v1 48abfad82184 25 minutes ago 400.5 MB

[root@node01 a]# docker run -itd myos:v2 /bin/bash

952bf7871f30004b72086bc01787cf62f7d7ebec4ba0d603ff88998aa080bd4a

[root@node01 a]# docker exec -it 95 /bin/bash

[root@952bf7871f30 /]# ifconfig | head -2

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 172.17.0.2 netmask 255.255.0.0 broadcast 0.0.0.0

[root@952bf7871f30 /]# exit

exit

[root@node01 a]#

[root@node01 a]# cd ..

[root@node01 files]#

#Dockerfile文件中，每一个命令会增加一层，层数越多，镜像也就越大，所以在编写Dockerfile的时候尽量合并可以放在一行的条目

[root@node01 files]# mkdir b

[root@node01 files]# cd b/

[root@node01 b]# touch Dockerfile

[root@node01 b]# cat >> dvd.repo << EOF

> [development]

> name=dvd

> baseurl=ftp://192.168.1.254/iso/centos/

> enabled=1

> gpgcheck=0

> EOF

[root@node01 b]# cat >> index.html << EOF

> docker http test page

> EOF

[root@node01 b]# vim Dockerfile

[root@node01 b]# cat Dockerfile

FROM docker.io/centos:latest

MAINTAINER Mark Li

ADD dvd.repo /etc/yum.repos.d/dvd.repo

RUN rm -rf /etc/yum.repos.d/CentOS-\*.repo && \

yum makecache && \

yum -y install vim net-tools bind-utils psmisc tree bash-completion && \

yum -y install httpd && \

yum clean all

ENV LANG=C

WORKDIR /var/www/html/

ADD index.html index.html

EXPOSE 80 443

CMD ["/usr/sbin/httpd", "-DFOREGROUND"]

[root@node01 b]# docker build -t myos:httpd .

[root@node01 b]# docker images myos

REPOSITORY TAG IMAGE ID CREATED SIZE

myos httpd 9932e1264487 18 seconds ago 316.5 MB

myos v2 4c1e5ce2f7eb 51 minutes ago 286.9 MB

myos v1 48abfad82184 About an hour ago 400.5 MB

[root@node01 b]# docker run -itd myos:httpd

fb3a75409a9fa81aaa148af6222f8e1d2a42ed63a466742d0f6f46bf656b1546

[root@node01 b]# docker inspect -f {{".NetworkSettings.IPAddress"}} fb

172.17.0.3

[root@node01 b]# curl 172.17.0.3

docker http test page

[root@node01 b]#

#单独找一个机器编译安装nginx，php-fpm

[root@node04 ~]# yum -y install gcc make openssl-devel

[root@node04 ~]# tar -xf nginx-1.12.2.tar.gz

[root@node04 ~]# useradd -s /sbin/nologin nginx

[root@node04 ~]# cd nginx-1.12.2/

[root@node04 nginx-1.12.2]# ./configure --prefix=/usr/local/nginx --user=nginx --group=nginx --with-http\_ssl\_module

[root@node04 nginx-1.12.2]# make && make install

[root@node04 ~]# yum -y install php php-fpm

[root@node04 ~]# cd /usr/local/nginx/

[root@node04 nginx]# vim conf/nginx.conf

[root@node04 nginx]# sed -rn "65,70p" conf/nginx.conf

location ~ \.php$ {

root html;

fastcgi\_pass 127.0.0.1:9000;

fastcgi\_index index.php;

include fastcgi.conf;

}

[root@node04 nginx]# cat >> html/info.php << EOF

> <?php

> phpinfo();

> ?>

> EOF

[root@node04 nginx]# ./sbin/nginx

[root@node04 nginx]# php-fpm -D

[root@node04 nginx]# curl -I localhost/info.php

HTTP/1.1 200 OK

Server: nginx/1.12.2

Date: Sun, 17 May 2020 02:33:24 GMT

Content-Type: text/html

Connection: keep-alive

X-Powered-By: PHP/5.4.16

[root@node04 nginx]# ./sbin/nginx -s stop

[root@node04 nginx]# pkill php-fpm

[root@node04 nginx]# rm -rf \*\_tmp

[root@node04 nginx]# ls

client\_body\_temp conf fastcgi\_temp html logs proxy\_temp sbin scgi\_temp uwsgi\_temp

[root@node04 nginx]# rm -rf \*\_temp

[root@node04 nginx]# ls

conf html logs sbin

[root@node04 nginx]# cd ..

[root@node04 local]# tar -zcf nginx.tar nginx/

[root@node04 local]# scp nginx.tar 192.168.1.1:/root/

[root@node01 ~]# mkdir files/c

[root@node01 ~]# mv nginx.tar files/c/

[root@node01 ~]# cd files/c/

[root@node01 c]# touch Dockerfile

[root@node01 c]# cat >> run.sh << EOF

> #!/bin/bash

> /usr/sbin/php-fpm -D

> /usr/local/nginx/sbin/nginx -g "daemon off;"

> EOF

[root@node01 c]# vim Dockerfile

[root@node01 c]# cat Dockerfile

FROM docker.io/centos:latest

MAINTAINER Mark Li

ADD dvd.repo /etc/yum.repos.d/

RUN rm -rf /etc/yum.repos.d/CentOS-\*.repo && \

yum makecache && \

yum -y install net-tools bind-utils vim iproute psmisc tree bash-completion && \

yum -y install gcc pcre openssl-devel && \

yum -y install php php-fpm && \

useradd -s /sbin/nologin nginx && \

yum clean all

ADD nginx.tar /usr/local/

ADD run.sh /etc/init.d/

EXPOSE 80 443

CMD ["/etc/init.d/run.sh"]

[root@node01 c]# cat >> dvd.repo << EOF

> [development]

> name=dvd

> enabled=1

> gpgcheck=0

> baseurl=ftp://192.168.1.254/iso/centos/

> EOF

[root@node01 c]# chmod 755 run.sh

[root@node01 c]# docker build -t myos:nginx .

[root@node01 c]# docker run -itd myos:nginx

6bb9326345cf5b1a7479722b3c38f623a3051796af48127af5b28de48c9a6a5f

[root@node01 c]# docker inspect -f {{".NetworkSettings.IPAddress"}} 6b

172.17.0.2

[root@node01 c]# curl -I 172.17.0.2/info.php

HTTP/1.1 200 OK

Server: nginx/1.12.2

Date: Sun, 17 May 2020 06:20:21 GMT

Content-Type: text/html

Connection: keep-alive

X-Powered-By: PHP/5.4.16

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#私有仓库

[root@node03 ~]# yum -y install docker-distribution

[root@node03 ~]# systemctl enable docker-distribution.service

sCreated symlink from /etc/systemd/system/multi-user.target.wants/docker-distribution.service to /usr/lib/systemd/system/docker-distribution.service.

[root@node03 ~]# systemctl start docker-distribution.service

[root@node03 ~]# ss -ntplu | grep 5000

tcp LISTEN 0 128 :::5000 :::\* users:(("registry",pid=762,fd=3))

[root@node03 ~]#

#上传镜像

[root@node01 ~]# curl http://192.168.1.3:5000/v2/

{}[root@node01 ~]#

[root@node01 ~]# docker rm $(docker stop $(docker ps -aq))

e02943dd2cbb

6bb9326345cf

[root@node01 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

myos nginx d83911892df2 38 minutes ago 394.7 MB

myos httpd 9932e1264487 44 hours ago 316.5 MB

myos v2 4c1e5ce2f7eb 45 hours ago 286.9 MB

myos v1 48abfad82184 46 hours ago 400.5 MB

docker.io/busybox latest 78096d0a5478 3 days ago 1.22 MB

docker.io/redis latest 82629e941a38 16 months ago 94.98 MB

docker.io/nginx latest 42b4762643dc 16 months ago 109.2 MB

docker.io/ubuntu latest 20bb25d32758 16 months ago 87.47 MB

docker.io/registry latest 116995fd6624 16 months ago 25.76 MB

docker.io/centos latest 76d6bc25b8a5 19 months ago 199.7 MB

[root@node01 ~]# vim /etc/sysconfig/docker

[root@node01 ~]# sed -rn '/5000/p' /etc/sysconfig/docker

ADD\_REGISTRY='--add-registry 192.168.1.3:5000'

INSECURE\_REGISTRY='--insecure-registry 192.168.1.3:5000'

[root@node01 ~]# systemctl restart docker

[root@node01 ~]# docker tag docker.io/busybox:latest 192.168.1.3:5000/busybox:latest

[root@node01 ~]# docker push 192.168.1.3:5000/busybox:latest

The push refers to a repository [192.168.1.3:5000/busybox]

1079c30efc82: Pushed

latest: digest: sha256:21718eb576e577a6cefaf6dc341feed742f042512f49213d8d50d09ddfc84da3 size: 527

[root@node01 ~]# docker push myos:v1

The push refers to a repository [192.168.1.3:5000/myos]

3b3a05da6734: Pushed

bcc97fbfc9e1: Pushed

v1: digest: sha256:0c834422cd18b47816f3feb553069b0bb63578449eacfa9650dde7f884fb97da size: 741

[root@node01 ~]# docker push myos:v2

The push refers to a repository [192.168.1.3:5000/myos]

fab4c623fcda: Pushed

4bf0f90eac8f: Pushed

bcc97fbfc9e1: Layer already exists

v2: digest: sha256:9f6f0a340d491fada4642bb6fe13a00fd181f68e1db8ef74cd871719bb266656 size: 948

[root@node01 ~]# docker push myos:v3

The push refers to a repository [192.168.1.3:5000/myos]

tag does not exist: myos:v3

[root@node01 ~]# docker push myos:httpd

The push refers to a repository [192.168.1.3:5000/myos]

9141367f0f49: Pushed

96eabedd4b95: Pushed

7a04260e2e6e: Pushed

bcc97fbfc9e1: Layer already exists

httpd: digest: sha256:c406f2b788b282fc725a6aee5498894fac8f4e49371499717985bb28c37d7cf7 size: 1155

[root@node01 ~]# docker push myos:nginx

The push refers to a repository [192.168.1.3:5000/myos]

9d1c47bd36c8: Pushed

70fb7813b7ad: Pushed

e57e86839b7e: Pushed

bea235577464: Pushed

bcc97fbfc9e1: Layer already exists

nginx: digest: sha256:d8df381424740685375fd6d9cea350f75337fe7a5d8f73c9cbeeab69e2b94656 size: 1366

[root@node01 ~]# curl http://192.168.1.3:5000/v2/

{}[root@node01 ~]# curl http://192.168.1.3:5000/v2/\_catalog

{"repositories":["busybox","myos"]}

[root@node01 ~]# curl http://192.168.1.3:5000/v2/busybox/tags/list

{"name":"busybox","tags":["latest"]}

[root@node01 ~]# curl http://192.168.1.3:5000/v2/myos/tags/list

{"name":"myos","tags":["v1","v2","httpd","nginx"]}

[root@node01 ~]#

#测试私有仓库

[root@node02 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

docker.io/busybox latest 78096d0a5478 3 days ago 1.22 MB

docker.io/redis latest 82629e941a38 16 months ago 94.98 MB

docker.io/nginx latest 42b4762643dc 16 months ago 109.2 MB

docker.io/ubuntu latest 20bb25d32758 16 months ago 87.47 MB

docker.io/registry latest 116995fd6624 16 months ago 25.76 MB

docker.io/centos latest 76d6bc25b8a5 19 months ago 199.7 MB

[root@node02 ~]# docker ps -aq

[root@node02 ~]# vim /etc/sysconfig/docker

[root@node02 ~]# sed -rn '/5000/p' /etc/sysconfig/docker

ADD\_REGISTRY='--add-registry 192.168.1.3:5000'

INSECURE\_REGISTRY='--insecure-registry 192.168.1.3:5000'

[root@node02 ~]# systemctl restart docker

[root@node02 ~]# docker run -itd myos:nginx

Unable to find image 'myos:nginx' locally

Trying to pull repository 192.168.1.3:5000/myos ...

nginx: Pulling from 192.168.1.3:5000/myos

2477fdadb9f2: Pull complete

d6fd6a339d53: Pull complete

707e22e16f73: Pull complete

6a3da837728b: Pull complete

Digest: sha256:d8df381424740685375fd6d9cea350f75337fe7a5d8f73c9cbeeab69e2b94656

a14a609caabefc3dec7ca4182001a90abc7437f527f58a7b9419a50a9ecca9d5

[root@node02 ~]# docker inspect -f {{".NetworkSettings.IPAddress"}} a1

172.17.0.2

[root@node02 ~]# curl -I http://172.17.0.2/info.php

HTTP/1.1 200 OK

Server: nginx/1.12.2

Date: Sun, 17 May 2020 07:07:39 GMT

Content-Type: text/html

Connection: keep-alive

X-Powered-By: PHP/5.4.16

[root@node02 ~]# docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

192.168.1.3:5000/myos nginx d83911892df2 49 minutes ago 394.7 MB

docker.io/busybox latest 78096d0a5478 3 days ago 1.22 MB

docker.io/redis latest 82629e941a38 16 months ago 94.98 MB

docker.io/nginx latest 42b4762643dc 16 months ago 109.2 MB

docker.io/ubuntu latest 20bb25d32758 16 months ago 87.47 MB

docker.io/registry latest 116995fd6624 16 months ago 25.76 MB

docker.io/centos latest 76d6bc25b8a5 19 months ago 199.7 MB

[root@node02 ~]#

#删除私有仓库镜像

[root@node01 ~]# docker images | grep v1

myos v1 48abfad82184 46 hours ago 400.5 MB

[root@node01 ~]#

[root@node03 ~]# cd /var/lib/registry/docker/registry/v2/

[root@node03 v2]# rm -rf blobs/sha256/48/48abfad8218446adb489691802dafd773f316496d85933193bbdd9ec5f81fc5c/

[root@node03 v2]# rm -rf repositories/myos/\_layers/sha256/48abfad8218446adb489691802dafd773f316496d85933193bbdd9ec5f81fc5c/

[root@node03 v2]# rm -rf repositories/myos/\_manifests/tags/v1/

[root@node03 v2]# curl http://192.168.1.3:5000/v2/myos/tags/list

{"name":"myos","tags":["v2","httpd","nginx"]}

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#存储卷映射

[root@node01 ~]# mkdir /docdir

[root@node01 ~]# touch /docdir/testdocker.txt

[root@node01 ~]# ls /docdir/testdocker.txt

/docdir/testdocker.txt

[root@node01 ~]# docker run -it -v /docdir/:/hostdir docker.io/centos:latest

[root@c80022465d73 /]# ls /

bin dev etc home hostdir lib lib64 media mnt opt proc root run sbin srv sys tmp usr var

[root@c80022465d73 /]# ls /hostdir/

testdocker.txt

[root@c80022465d73 /]# rm -rf /hostdir/testdocker.txt

[root@c80022465d73 /]# exit

exit

[root@node01 ~]# ls /docdir/

[root@node01 ~]#

[root@node01 ~]# mkdir /webdir

[root@node01 ~]# echo testweb >> /webdir/index.html

[root@node01 ~]# docker run -itd -v /webdir/:/var/www/html myos:httpd

2e5f36bbd9ea896d8daf6183dddf8a1400bb50e5b404fa43e366ed7fedf55a4a

[root@node01 ~]# docker inspect -f {{'.NetworkSettings.IPAddress'}} 2e

172.17.0.2

[root@node01 ~]# curl 172.17.0.2

testweb

[root@node01 ~]# echo testweb >> /webdir/index.html

[root@node01 ~]# curl 172.17.0.2

testweb

testweb

[root@node01 ~]#

#nfs共享存储卷

[root@node04 ~]# mkdir /var/webroot/

[root@node04 ~]# yum -y install nfs-utils

[root@node04 ~]# vim /etc/exports

[root@node04 ~]# cat /etc/exports

/var/webroot/ 192.168.1.0/24(rw)

[root@node04 ~]# systemctl restart nfs

[root@node04 ~]# exportfs -rv

exporting 192.168.1.0:/var/webroot

[root@node04 ~]#

[root@node01 ~]# yum -y install nfs-utils

[root@node01 ~]# showmount -e 192.168.1.4

Export list for 192.168.1.4:

/var/webroot 192.168.1.0/24

[root@node01 ~]# mount -t nfs -o rw 192.168.1.4:/var/webroot /mnt

[root@node01 ~]# df -hT | grep nfs

192.168.1.4:/var/webroot nfs4 10G 1.4G 8.7G 14% /mnt

[root@node01 ~]#

[root@node02 ~]# yum -y install nfs-utils

[root@node02 ~]# showmount -e 192.168.1.4

Export list for 192.168.1.4:

/var/webroot 192.168.1.0/24

[root@node02 ~]# mount -t nfs -o rw 192.168.1.4:/var/webroot/ /mnt

[root@node02 ~]# df -hT | grep nfs

192.168.1.4:/var/webroot nfs4 10G 1.4G 8.7G 14% /mnt

[root@node02 ~]#

[root@node01 ~]# docker run -itd -v /mnt/:/usr/local/nginx/html myos:nginx

6cfde6397861605e6b1f05578a81cb2cc7e2a2c0633bbe58b5bc0ac40c253074

[root@node01 ~]# docker inspect -f {{'.NetworkSettings.IPAddress'}} 6c

172.17.0.2

[root@node01 ~]#

[root@node02 ~]# docker run -itd -v /mnt/:/var/www/html/ myos:httpd

Unable to find image 'myos:httpd' locally

Trying to pull repository 192.168.1.3:5000/myos ...

httpd: Pulling from 192.168.1.3:5000/myos

d30a59479198: Pull complete

76bf45e56f8e: Pull complete

ff656bea8365: Pull complete

Digest: sha256:c406f2b788b282fc725a6aee5498894fac8f4e49371499717985bb28c37d7cf7

1561a7af76292f502a757a46f1e85c3c83e0662dbc6245bf35d3310c06d942d7

[root@node02 ~]# docker inspect -f {{'.NetworkSettings.IPAddress'}} 15

172.17.0.2

[root@node02 ~]#

[root@node04 ~]# echo teststatic >> /var/webroot/index.html

[root@node04 ~]# vim /var/web/root/test.php

[root@node04 ~]# cat /var/webroot/test.php

<?php

$i='testdynamic\n';

echo $i;

?>

[root@node04 ~]#

[root@node01 ~]# curl 172.17.0.2

teststatic

[root@node01 ~]# curl 172.17.0.2/test.php

testdynamic\n[root@node01 ~]#

[root@node02 ~]# curl 172.17.0.2

teststatic

[root@node02 ~]# curl 172.17.0.2/test.php

<?php

$i='testdynamic\n';

echo $i;

?>

[root@node02 ~]#

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#端口映射

[root@node01 ~]# mkdir /webroot

[root@node01 ~]# echo testpage >> /webroot/index.html

[root@node01 ~]# vim /webroot/test.php

[root@node01 ~]# cat /webroot/test.php

<?php

$i = "12345";

echo $i;

?>

[root@node01 ~]# docker run -itd -p 80:80 -v /webroot/:/var/www/html/ myos:httpd

0d8a08a759acbe14218b5340a873690266657e13f8a6b26109d4dba3adda3b99

[root@node01 ~]# curl localhost

testpage

[root@node01 ~]# curl localhost/test.php

<?php

$i = "12345";

echo $i;

?>

[root@node01 ~]# docker stop 0d

0d

[root@node01 ~]# docker run -itd -p 80:80 -v /webroot/:/usr/local/nginx/html/ myos:nginx

5e6cddce017fb35a6c33df82c0849d4347c8c67425d1ee0a4ed7f8424d49bb0d

[root@node01 ~]# curl localhost

testpage

[root@node01 ~]# curl localhost/test.php

12345[root@node01 ~]#

[root@node01 ~]#