CloudOS2.0和3.0容器固化配置

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组网及说明

1、CloudOS2.0版本：1139H06

CloudOS2.0版本对应的CAS版本：0526H11

2、CloudOS3.0 版本：3106H01

CloudOS3.0版本对应的CAS版本：0530H11

配置步骤

一、CloudOS 2.0版本容器固化步骤

这里以修改cloudos-openstack镜像为例。

1、备份镜像

使用“docker ps | grep cloudos-openstack”查看关键字为cloudos-openstack容器。

```
[root@cloudosone ~]# docker ps | grep cloudos-openstack
fe808115e8fd        cloudos-openstack-compute:E1139H06                "/root/docker-opensta"
  About an hour ago   Up About an hour
                                                                      k8s_demon.40e78b1d_demonrc-b4
5kl_default_bca14297-f7c0-11e9-959d-0cda411d182f_ec68778f
4124f0bbf718        cloudos-openstack:E1139H06                        "/root/docker-opensta"
  5 hours ago         Up 5 hours
                                                                      k8s_openstack.2e840874_openst
ackrc-8d5s7_default_f70389d8-f7a1-11e9-959d-0cda411d182f_8eadeea1
[root@cloudosone ~]# docker images | grep cloudos-openstack
```

图1 查找对应容器

查找需要修改的镜像文件，使用tag命令对标签为“E113906”的cloudos-openstack镜像进行备份，备份后的标签为E113906bak。输入“docker images | grep cloudos-openstack”查看到备份的镜像和原镜像大小相同。

```
[root@cloudosone ~]# docker images | grep cloudos-openstack
cloudos-openstack-compute                                         E1139H06
39235bd0949f        About an hour ago   1.846 GB
192.168.12.226:9999/cloudos-openstack-manila-share                E1139H06
34ef868dcc49        9 months ago        730.6 MB
cloudos-openstack-manila-share                                    E1139H06
34ef868dcc49        9 months ago        730.6 MB
cloudos-openstack-compute                                         E1139H06_bak201910261515
ca8b3e41b7f0        9 months ago        1.799 GB
192.168.12.226:9999/cloudos-openstack                             E1139H06
d5545a14541d        9 months ago        2.146 GB
cloudos-openstack                                                 E1139H06
d5545a14541d        9 months ago        2.146 GB
[root@cloudosone ~]# docker tag cloudos-openstack:E1139H06 cloudos-openstack:E1139H06bak
[root@cloudosone ~]# docker images | grep cloudos-openstack
cloudos-openstack-compute                                         E1139H06
39235bd0949f        About an hour ago   1.846 GB
192.168.12.226:9999/cloudos-openstack-manila-share                E1139H06
34ef868dcc49        9 months ago        730.6 MB
cloudos-openstack-manila-share                                    E1139H06
34ef868dcc49        9 months ago        730.6 MB
cloudos-openstack-compute                                         E1139H06_bak201910261515
ca8b3e41b7f0        9 months ago        1.799 GB
192.168.12.226:9999/cloudos-openstack                             E1139H06
d5545a14541d        9 months ago        2.146 GB
cloudos-openstack                                                 E1139H06
d5545a14541d        9 months ago        2.146 GB
cloudos-openstack                                                 E1139H06bak
d5545a14541d        9 months ago        2.146 GB
[root@cloudosone ~]#
```

图2 找到目标镜像，备份镜像

2、去除原镜像标签

在备份完镜像后，使用“docker rmi cloudos-openstack:E1139H06” 去除原镜像的标签。命令查看验证原来镜像的标签已经被成功去除。

```
[root@cloudosone ~]# docker rmi cloudos-openstack:E1139H06
Untagged: cloudos-openstack:E1139H06
[root@cloudosone ~]# docker images | grep cloudos-openstack
cloudos-openstack-compute                                         E1139H06
39235bd0949f        About an hour ago   1.846 GB
192.168.12.226:9999/cloudos-openstack-manila-share                E1139H06
34ef868dcc49        9 months ago        730.6 MB
cloudos-openstack-manila-share                                    E1139H06
34ef868dcc49        9 months ago        730.6 MB
cloudos-openstack-compute                                         E1139H06_bak201910261515
ca8b3e41b7f0        9 months ago        1.799 GB
192.168.12.226:9999/cloudos-openstack                             E1139H06
d5545a14541d        9 months ago        2.146 GB
cloudos-openstack                                                 E1139H06bak
d5545a14541d        9 months ago        2.146 GB
[root@cloudosone ~]#
```

图3 删除原镜像标签

3、制作新镜像

查询对应的容器，根据容器id，使用“docker exec –it [容器id] bash”命令进入容器。将/root/scripts/目录下的pre-install.sh拷贝至本地/opt/openstack-transfer。

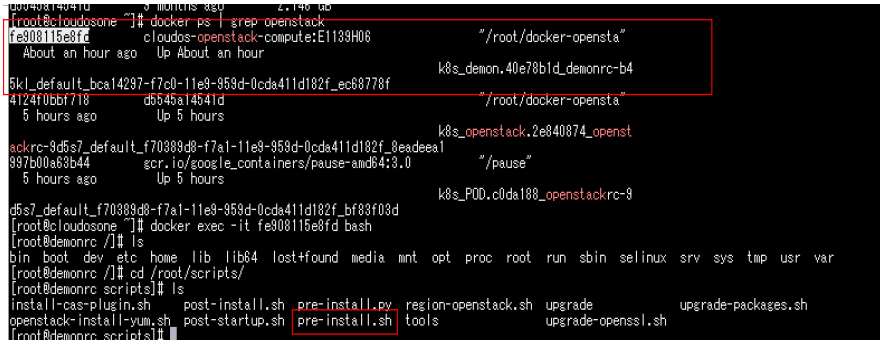

图4 进入对应容器，找到目标文件

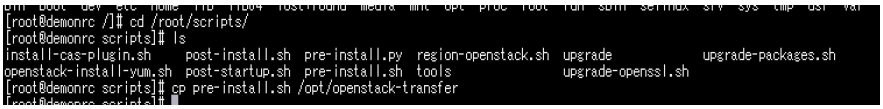

图5 将目标文件拷贝至本地

退出容器，在/root/下新建文件夹，命名为guhua，并将刚才/opt/openstack-transfer目录下的pre-install.sh拷贝至/root/guhua/下，再进行修改。

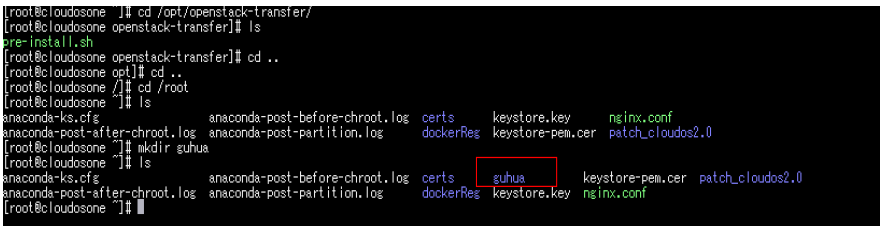

图6 将目标文件拷贝至/root/guhua/下

拷贝后，验证是否拷贝成功。

图7 检验拷贝是否成功

通过“vi pre-install.sh”修改文件，使用“/openstack-cinfig”进行关键字搜索。

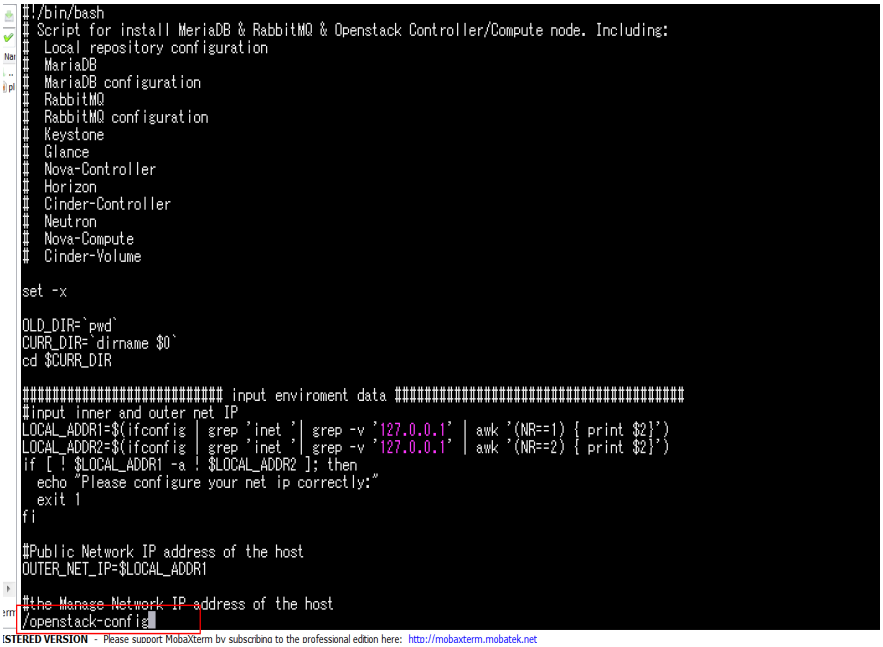

图8 使用vi命令关键字搜索

搜索的第一次结果如图。

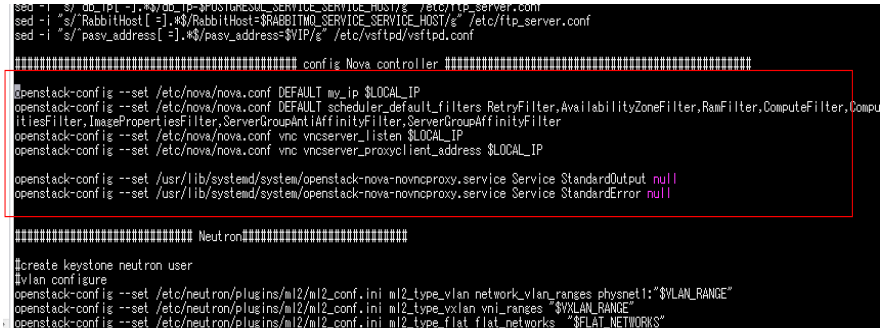

图9 第一次搜索结果

多次检索后，找到要修改的位置，将firewall_type从CGSR修改为GATEWAY，将lb_type 从CGSR修改为SERVICE_CHIAN，将resource_mode从CORE_GATEWAY修改为 NFV。

图10 pre-install.sh修改前

图11 pre-install.sh修改后

创建dockerfile文件（即图中的dockerfileopenstackbuild.txt）来新建镜像。

图12 创建dockerfile文件

这里的dockerfile规定了：FROM是指明当前新镜像是基于哪个镜像的；USER表示用户为root；COPY表示拷贝文件和目录到镜像中，这里是将当前目录下修改后的pre-install.sh拷贝至/root/scripts目录下。

图13 dockerfile修改内容

检查刚刚创建的dockerfile文件是否正确。

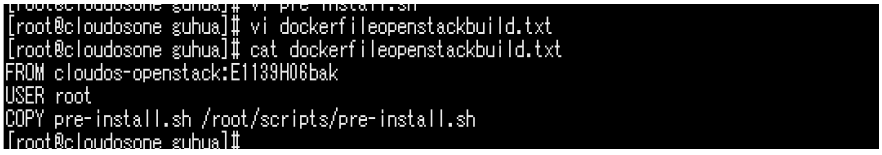

图14 检验dockerfile文件

通过“docker build”命令构建新的镜像，成功后显示“Successfully built [新镜像id]”。

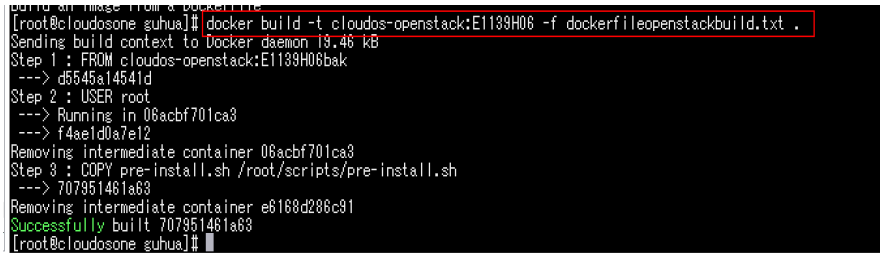

图15 新建镜像

查看是否新增镜像。

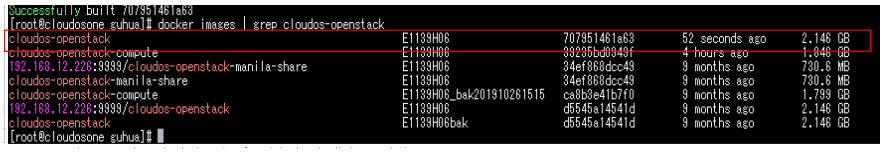

图16 查看是否新增镜像

4、删除当前容器

查找当前openstack容器，获得容器名称“openstackrc”，并进行删除。

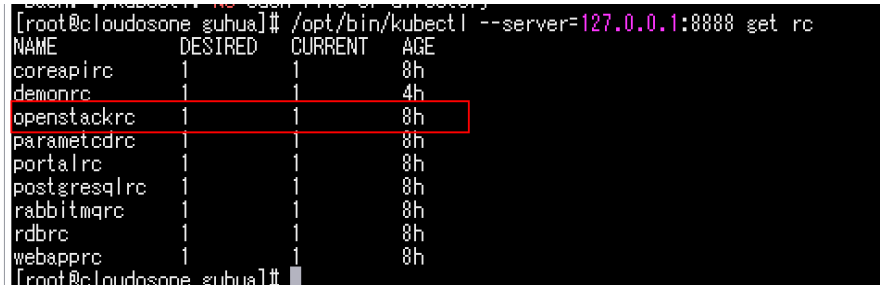

图17 查找当前容器

检查容器是否已经删除成功，可以看到，已经没有“openstackrc”。

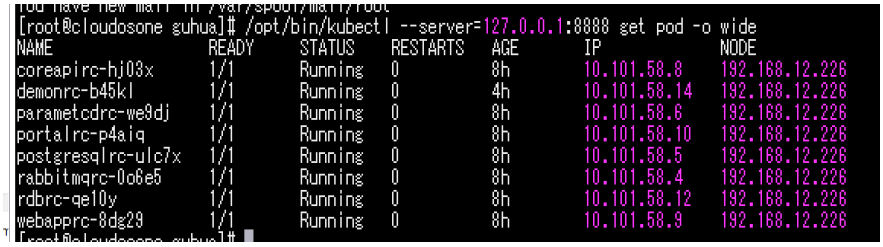

图18 检查容器删除是否成功

5、使用新镜像创建容器

重新创建容器前需要先检查openstack-rc.yaml文件中的image字段是否与上一步build出来的tag一致。

图19 找到openstack-rc.yaml文件

从图中可以看到，openstack-rc.yaml文件中的image字段与上一步build出来的tag一致，镜像信息为cloudos-openstack:E1139H06。

```
apiVersion: v1
kind: ReplicationController
metadata:
  name: openstackrc
spec:
  replicas: 1
  # selector identifies the set of Pods that this
  # replication controller is responsible for managing
  selector:
    app: openstack
  # podTemplate defines the 'cookie cutter' used for creating
  # new pods when necessary
  template:
    metadata:
      labels:
        # Important: these labels need to match the selector above
        # The api server enforces this constraint.
        app: openstack
      annotations:
        "pod.beta.kubernetes.io/hostname": openstack-server
    spec:
      containers:
      - name: openstack
        image: cloudos-openstack:E1139H06
        env:
        - name: ALL_PASS
          value: cloudos
        - name: VIP
          value: 192.168.12.226
        ports:
        - containerPort: 20
        - containerPort: 21
        - containerPort: 8080
```

图20 检验文件中镜像的tag

通过"/opt/bin/kubectl --server=127.0.0.1:8888 create –f /opt/bin/conFile/openstack-rc.yaml"创建新容器。

```
[root@cloudosone confFile]# vi openstack-rc.yaml
[root@cloudosone confFile]# /opt/bin/kubectl --server=127.0.0.1:8888 create -f /opt/bin/confFile/openstack-rc.yaml
replicationcontroller "openstackrc" created
[root@cloudosone confFile]#
```

图21 创建新容器

查看是否拉起openstack的docker，以及其运行状态是否为正常的Running状态。

```
[root@cloudosone confFile]# vi openstack-rc.yaml
[root@cloudosone confFile]# /opt/bin/kubectl --server=127.0.0.1:8888 create -f /opt/bin/confFile/openstack-rc.yaml
replicationcontroller "openstackrc" created
[root@cloudosone confFile]# /opt/bin/kubectl --server=127.0.0.1:8888 get pod -o wide
NAME                READY     STATUS    RESTARTS   AGE       IP             NODE
coreapirc-hj03x     1/1       Running   0          8h        10.101.58.8    192.168.12.226
demonrc-b45kl       1/1       Running   0          4h        10.101.58.14   192.168.12.226
openstackrc-x1rfs   1/1       Running   0          21s       10.101.58.7    192.168.12.226
parametcdrc-we8dj   1/1       Running   0          8h        10.101.58.6    192.168.12.226
portalrc-p4aiq      1/1       Running   0          8h        10.101.58.10   192.168.12.226
postgresqlrc-ulc7x  1/1       Running   0          8h        10.101.58.5    192.168.12.226
rabbitmqrc-0o6e5    1/1       Running   0          8h        10.101.58.4    192.168.12.226
rdbrc-qe10y         1/1       Running   0          8h        10.101.58.12   192.168.12.226
webapprc-8dg29      1/1       Running   0          8h        10.101.58.9    192.168.12.226
[root@cloudosone confFile]#
```

图22 看容器是否拉起，正常运行

6、查看容器固化操作是否成功

通过查找对应容器id进入cloudos-openstack容器，检验对应的参数是否固化。

```
[root@cloudosone confFile]# docker ps | grep openstack
88a1df6f0c24        cloudos-openstack:E1139H06                      "/root/docker-opensta"   3 minutes ago       Up 3 minutes
                                                                                             k8s_openstack.2e840874_openstackrc-x1rfs_default_b
0a1c2a8-f7e8-11e8-959d-0cda411d182f_90d5e21b
f12fcadccfab        gcr.io/google_containers/pause-amd64:3.0        "/pause"                 3 minutes ago       Up 3 minutes
                                                                                             k8s_POD.c0da188_openstackrc-x1rfs_default_b6a1c2a8
-f7e8-11e8-959d-0cda411d182f_b89d5c1c
fe908115e8fd        cloudos-openstack-compute:E1139H06              "/root/docker-opensta"   4 hours ago         Up 4 hours
                                                                                             k8s_demon.40e78b1d_demonrc-b45kl_default_bca14297-
f7c0-11e8-959d-0cda411d182f_ec88778f
[root@cloudosone confFile]# docker exec -it 88a1df6f0c24 bash
[root@openstack-server /]#
```

图23 查找并进入目标容器

找到/root/scripts/下的pre-install.sh找到刚刚修改的位置，可以看到，参数和修改时一样，即固化成功。

```
[root@openstack-server /]#
[root@openstack-server /]# cd /root/scripts/
[root@openstack-server scripts]# ls
create-task.txt    openstack-auto-task.sh    post-install.sh  region-openstack.sh      upgrade                 upgrade-openssl.sh
ldap-openstack.py  openstack-install-yum.sh  post-startup.sh  region-openstack.sh_bak  upgrade-db-to-mitaka.sh  upgrade-vsftpd.sh
ldap-openstack.sh  post-install2.sh          pre-install.sh   tools                    upgrade-httpd.sh         wsgi-keystone.conf
[root@openstack-server scripts]# vi pre-install.sh
```

图24 找到目标文件

```
    #tianmm,added, for evpn solution
    if [ $l3vxlanmodel != "null" ]; then
  openstack-config --set /etc/neutron/plugins/ml2/ml2_conf_h3c.ini  VCFCONTROLLER  enable_l3_vxlan  "$l3vxlanmodel"
fi

openstack-config --set /etc/neutron/plugins/ml2/ml2_conf_h3c.ini  VCFCONTROLLER  firewall_type  GATEWAY
openstack-config --set /etc/neutron/plugins/ml2/ml2_conf_h3c.ini  VCFCONTROLLER  lb_type  SERVICE_CHAIN
openstack-config --set /etc/neutron/plugins/ml2/ml2_conf_h3c.ini  VCFCONTROLLER  resource_mode  NFV
if [ "$upgradevalue" = "null" ]|| [ -z $upgradevalue];then
      openstack-config --set /etc/neutron/plugins/ml2/ml2_conf_h3c.ini  VCFCONTROLLER  enable_security_group  False
fi
```

图25 查看是否固化成功

二、CloudOS 3.0版本容器固化步骤

这里以修改cloudos-openstack-sahara镜像为例。

1、修改镜像文件

查找要修改的容器镜像，这里选择cloudos-openstack-sahara，进入该容器。

```
[root@single1 /]#
[root@single1 /]# docker ps | grep cloudos-openstack-sahara
e861ff5f5c5b        192.168.10.99:9999/cloudos-openstack-sahara@sha256:9df50d20e3cb464437bad5c881d3140ab6cb5e9f1948124cc49bc3ef832d97
d3                  "/docker-entrypoint.s"   4 minutes ago       Up 4 minutes                                    k8s_cloudos-opensta
ck-sahara_saharare-t179d_default_19736af5-f7f5-11e9-9ffe-0cda411d52a1_0
[root@single1 /]# docker exec -it e861ff5f5c5b bash
[root@sahara-service /]#
```

图26 找到目标容器并进入

找到该容器的/root/scripts/目录下的health-check.sh，将该文件拷贝至本地/opt/openstack-transfer/sahara/目录下。

```
[root@sahara-service /]#
[root@sahara-service /]# cd /root/scripts/
[root@sahara-service scripts]# ls
health-check.sh  pre-startup.sh  region-openstack.sh  upgrade               upgrade-openssl.sh
post-startup.sh  pre-stop.sh     tools                upgrade-db-to-pike.sh
[root@sahara-service scripts]# cd /opt/openstack-transfer/sahara/
[root@sahara-service sahara]# ls
[root@sahara-service sahara]# cd /root/scripts/
[root@sahara-service scripts]# cp health-check.sh /opt/openstack-transfer/sahara/
[root@sahara-service scripts]# ls
health-check.sh  pre-startup.sh  region-openstack.sh  upgrade               upgrade-openssl.sh
post-startup.sh  pre-stop.sh     tools                upgrade-db-to-pike.sh
[root@sahara-service scripts]# cd /opt/openstack-transfer/sahara/
[root@sahara-service sahara]# ls
health-check.sh
[root@sahara-service sahara]#
```

图27 找到目标文件，拷贝至本地

对该文件进行修改，如图中新增一行注释，写上“#hello”。

```
#!/bin/bash
#hello
source /root/admin-openrc.sh
openstack dataprocessing cluster list
if [ $? -ne 0 ]; then
    echo "WARNING: unhealthy"
    exit 1
fi

exit 0
~
~
~
~
```

图28 修改目标文件

检验修改是否成功。

```
"health-check.sh" 16L, 160C written
[root@sahara-service sahara]# cat health-check.sh
#!/bin/bash
#hello
source /root/admin-openrc.sh
openstack dataprocessing cluster list
if [ $? -ne 0 ]; then
    echo "WARNING: unhealthy"
    exit 1
fi

exit 0
[root@sahara-service sahara]#
```

图29 检验修改是否成功

退出容器，查找到/opt/openstack-transfer/sahara/目录下的health-check.sh，可以看到是刚才修改的文件。

```
exit 0
[root@sahara-service sahara]# exit
exit
[root@single1 /]# cd /opt/openstack-transfer/sahara/
[root@single1 sahara]# ls
health-check.sh
[root@single1 sahara]# cat health-check.sh
#!/bin/bash
#hello
source /root/admin-openrc.sh
openstack dataprocessing cluster list
if [ $? -ne 0 ]; then
    echo "WARNING: unhealthy"
    exit 1
fi

exit 0
[root@single1 sahara]#
```

图30 本地目录下检验修改的文件

2、利用固化工具替换镜像

将修改后的health-check.sh拷贝到固化工具（固化工具事先拷贝至/root/下，并进行解压）解压出来的目录/root/update_image/patchs/replace_files/files/目标文件在镜像中的目录，在该示例中为/root/update_image/patchs/replace_files/files/root/scripts/。

```
[root@single1 sahara]# cp health-check.sh /root/update_image/patchs/replace_files/files/root/scripts/
cp: overwrite '/root/update_image/patchs/replace_files/files/root/scripts/health-check.sh'? y
[root@single1 sahara]#
```

图31 将目标文件拷贝至特定目录

查找要替换文件的镜像名称和镜像的tag。如图中本地镜像cloudos-openstack-sahara，tag为E3107-V300R001B01D030SP01-RC4。然后进入/root/update_image目录，使用 “sh main.sh [镜像名称]:[镜像tag] patchs/replace_files/”命令执行替换镜像文件脚本。

```
[root@single1 sahara]# cp health-check.sh /root/update_image/patchs/replace_files/files/root/scripts/
cp: overwrite '/root/update_image/patchs/replace_files/files/root/scripts/health-check.sh'? y
[root@single1 sahara]# docker images | grep cloudos-openstack-sahara
192.168.10.99:9999/cloudos-openstack-sahara                      E3107-V300R001B01D030SP01-RC4                  0a02de697908
3 minutes ago      845.2 MB
cloudos-openstack-sahara                                         E3107-V300R001B01D030SP01-RC4                  0a02de697908
3 minutes ago      845.2 MB
cloudos-openstack-sahara                                         E3107-V300R001B01D030SP01-RC4-20191026213246   ccf9a3459f58
 months ago        845.2 MB
192.168.10.99:9999/cloudos-openstack-sahara                      E3106H01-V300R001B01D029-RC3                   6001b510dbc3
 months ago        841.3 MB
cloudos-openstack-sahara                                         E3106H01-V300R001B01D029-RC3                   6001b510dbc3
 months ago        841.3 MB
[root@single1 sahara]# cd /root/update_image
[root@single1 update_image]# sh main.sh cloudos-openstack-sahara:E3107-V300R001B01D030SP01-RC4 patchs/replace_files/
Log file /var/log/update-image.log

********************************************************************************
********************************************************************************
******************** H3CloudOS Docker Image Build Tool *********************
********************************************************************************
********************************************************************************
```

图32 执行替换镜像脚本

执行完成后会进行二次确认，输入“Y”则开始执行脚本。

```
Log file /var/log/update-image.log

********************************************************************************
********************************************************************************
******************** H3CloudOS Docker Image Build Tool *********************
********************************************************************************
********************************************************************************

The following k8s pods will be automatically restarted:
    sahararc-t179d

Continue to build cloudos-openstack-sahara:E3107-V300R001B01D030SP01-RC4 with patchs/replace_files/? (Y/N): Y
+ cat
+ echo -e '\033[32mBegin to build docker image: cloudos-openstack-sahara:E3107-V300R001B01D030SP01-RC4-new.\033[0m'
Begin to build docker image: cloudos-openstack-sahara:E3107-V300R001B01D030SP01-RC4-new.
+ docker build -t cloudos-openstack-sahara:E3107-V300R001B01D030SP01-RC4-new patchs/replace_files/
Sending build context to Docker daemon 7.168 kB
Step 1 : FROM cloudos-openstack-sahara:E3107-V300R001B01D030SP01-RC4
 ---> 0a02de697908
Step 2 : COPY ./cmds.sh /root/upgrade_temp/cmds.sh
```

图33 替换镜像过程

最终显示镜像替换完成。

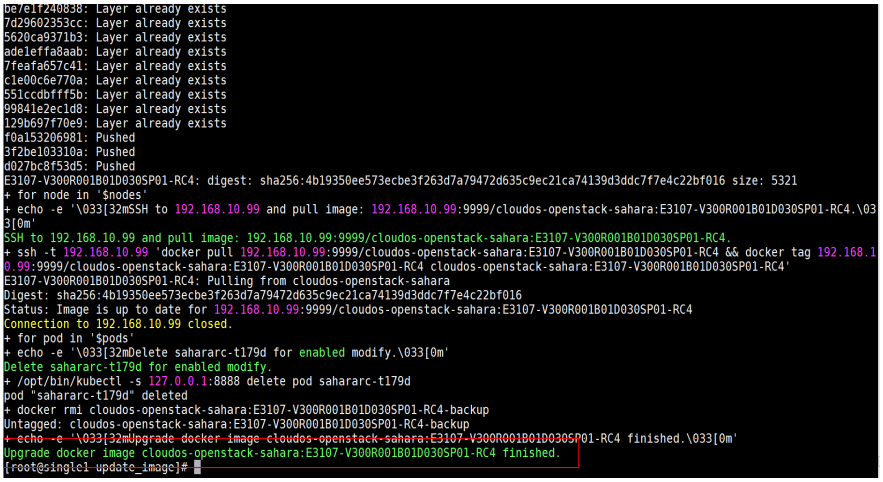

图34 替换镜像成功

3、查看容器固化操作是否成功

使用“pod | grep [镜像名称]”命令查找由该镜像启动的pod。图中所示“59s”表示该容器是59秒前创建的。

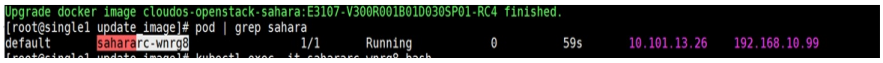

图35 查看新建镜像

进入容器中，找到/root/scripts/目录下目标文件health-check.sh，查看文件是否替换成功。使用cat命令查看，如图，可以看到之前增加的注释“#hello”，说明容器固化操作成功。

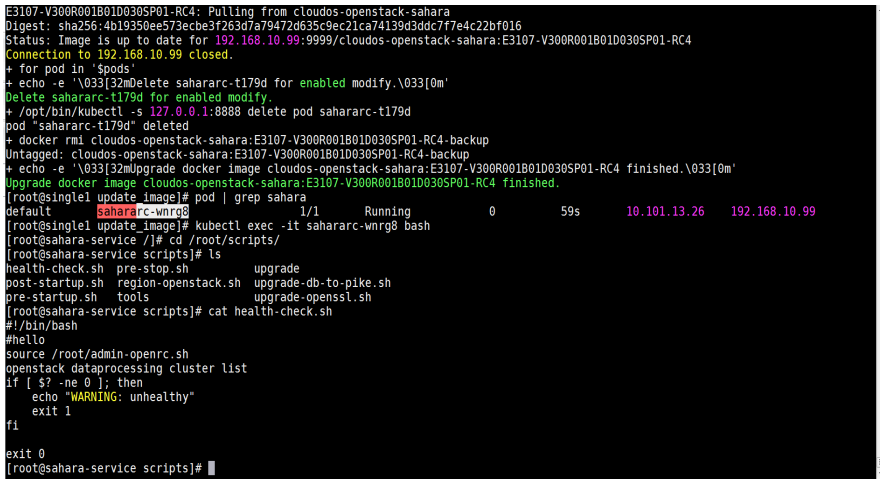

图36 查看容器固化是否成功

配置关键点

1、在CloudOS2.0版本中使用“docker rmi cloudos-openstack:E1139H06”命令并没有风险，该命令只是去除原镜像的标签，并没有将原镜像删除，因此只要记住原镜像的名称和uuid即可。