

# 对处于ImagePullBackOff状态的注册表命名空间Pod进行故障排除

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## 简介

本文档介绍处于ImagePullBackOff状态的注册表Pod的问题和解决方案。

## 问题

Ultra Cloud Core Subscriber Microservices Infrastructure(SMI)的Cluster Manager(CM)中的注册Pod处于ImagePullBackOff状态。

```
cloud-user@lab-deployer-cm-primary:~$ kubectl get pods -A -o wide | grep -v "Running"
NAMESPACE          NAME                                READY
STATUS             RESTARTS   AGE    IP              NODE                                NOMINATED NODE
READINESS GATES
registry           charts-cee-2020-02-2-1-1-0         0/1
ImagePullBackOff  0          100d   10.10.10.178    lab-deployer-cm-primary           <none>
<none>
registry           charts-cluster-deployer-2020-02-2-35-0 0/1
ImagePullBackOff  0          100d   10.10.10.180    lab-deployer-cm-primary           <none>
<none>
registry           registry-cee-2020-02-2-1-1-0       0/1
ImagePullBackOff  0          100d   10.10.10.198    lab-deployer-cm-primary           <none>
<none>
registry           registry-cluster-deployer-2020-02-2-35-0 0/1
ImagePullBackOff  0          100d   10.10.10.152    lab-deployer-cm-primary           <none>
<none>
registry           software-unpacker-0                0/1
ImagePullBackOff  0          100d   10.10.10.160    lab-deployer-cm-primary           <none>
<none>
```

通用执行环境(CEE)部署器显示系统就绪百分比为零，因为系统同步挂起为true。

```
[deployer/cee] cee# show system
system uuid 012345678-9abc-0123-4567-000011112222
system status deployed true
system status percent-ready 0.0
system ops-center repository https://charts.10.192.1.1.nip.io/cee-2020.02.2.35
system ops-center-debug status false
system synch running true
system synch pending true.
```

使用安全外壳协议(SSH)连接到CEE，报告错误404 Not Found。

```
[deployer/cee] cee#
Message from confd-api-manager at 2022-05-05 01:01:01...
Helm update is ERROR. Trigger for update is CHANGE. Message is:
WebApplicationException: HTTP 404 Not Found
com.google.common.util.concurrent.UncheckedExecutionException:
javax.ws.rs.WebApplicationException: HTTP 404 Not Found
at com.google.common.cache.LocalCache$Segment.get(LocalCache.java:2052)
at com.google.common.cache.LocalCache.get(LocalCache.java:3943)
at com.google.common.cache.LocalCache.getOrLoad(LocalCache.java:3967)
at com.google.common.cache.LocalCache$LocalLoadingCache.get(LocalCache.java:4952)
at
com.broadhop.conf.d.config.proxy.dao.HelmRepositoryDAO.getChartVersion(HelmRepositoryDAO.java:638
)
at
com.broadhop.conf.d.config.proxy.dao.HelmRepositoryDAO.installRelease(HelmRepositoryDAO.java:359)
at
com.broadhop.conf.d.config.proxy.dao.HelmRepositoryDAO.sendConfiguration(HelmRepositoryDAO.java:2
54)
at
com.broadhop.conf.d.config.proxy.service.ConfigurationSynchManager.run(ConfigurationSynchManager.
java:233)
at java.util.concurrent.Executors$RunnableAdapter.call(Executors.java:511)
at java.util.concurrent.FutureTask.runAndReset(FutureTask.java:308)
at
java.util.concurrent.ScheduledThreadPoolExecutor$ScheduledFutureTask.access$301(ScheduledThreadP
oolExecutor.java:180)
at
java.util.concurrent.ScheduledThreadPoolExecutor$ScheduledFutureTask.run(ScheduledThreadPoolExec
utor.java:294)
at java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1149)
at java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:624)
at java.lang.Thread.run(Thread.java:748)
Caused by: javax.ws.rs.WebApplicationException: HTTP 404 Not Found
at
com.broadhop.conf.d.config.proxy.dao.HelmRepositoryDAO.retrieveHelmIndex(HelmRepositoryDAO.java:6
20)
at com.broadhop.conf.d.config.proxy.dao.HelmRepositoryDAO$2.load(HelmRepositoryDAO.java:114)
at com.broadhop.conf.d.config.proxy.dao.HelmRepositoryDAO$2.load(HelmRepositoryDAO.java:112)
at com.google.common.cache.LocalCache$LoadingValueReference.loadFuture(LocalCache.java:3524)
at com.google.common.cache.LocalCache$Segment.loadSync(LocalCache.java:2273)
at com.google.common.cache.LocalCache$Segment.lockedGetOrLoad(LocalCache.java:2156)
at com.google.common.cache.LocalCache$Segment.get(LocalCache.java:2046)
```

## 分析

### 1. 检查CEE Deployer中的helm存储库配置。

```
[deployer/cee] cee# show running-config helm
helm default-repository base-repos
helm repository base-repos
url https://charts.10.192.1.1.nip.io/cee-2020.02.2.35
exit
```

### 2. 从主群集管理器查询url的index.yaml，以确保发送404响应。

```
cloud-user@deployer-cm-primary:~$ curl -k https://charts.10.192.1.1.nip.io/cee-2020.02.2.35/index.yaml
default backend - 404
```

### 3. 查询图像列表 kubectl describe pod 命令。没有基于描述错误的图像。

```
cloud-user@lab-deployer-cm-primary:~$ kubectl describe pod ops-center-cee-labcluster-ops-
center-df69975c7-gzszg -n cee-labcluster | grep Image
Image: docker.10.192.1.1.nip.io/cee-2020.02.2.35/smi-apps/cee-ops-
center/2020.02.2/confd_init:0.7.0-00001111
```

Image ID: docker-pullable://docker.10.192.1.1.nip.io/cee-2020.02.2.33/smi-apps/cee-ops-center/2020.02.2/confd\_init@sha256:01234567890123456789012345678901234567890123456789012345678901234567890123

Image: docker.10.192.1.1.nip.io/cee-2020.02.2.35/smi-libraries/ops-center/2020.02.2/crd\_registry:0.7.1-00002222

Image ID: docker-pullable://docker.10.192.1.1.nip.io/cee-2020.02.2.27/smi-libraries/ops-center/2020.02.2/crd\_registry@sha256:01234567890123456789012345678901234567890123456789012345678901234567890123

Image: docker.10.192.1.1.nip.io/cee-2020.02.2.35/smi-libraries/ops-center/2020.02.2/local\_storage\_init:0.7.1-00003333

Image ID: docker-pullable://docker.10.192.1.1.nip.io/cee-2020.02.2.27/smi-libraries/ops-center/2020.02.2/local\_storage\_init@sha256:01234567890123456789012345678901234567890123456789012345678901234567890123

Image: docker.10.192.1.1.nip.io/cee-2020.02.2.35/smi-libraries/ops-center/2020.02.2/confd:0.7.1-00004444

Image ID: docker-pullable://docker.10.192.1.1.nip.io/cee-2020.02.2.27/smi-libraries/ops-center/2020.02.2/confd@sha256:01234567890123456789012345678901234567890123456789012345678901234567890123

Image: docker.10.192.1.1.nip.io/cee-2020.02.2.35/smi-libraries/ops-center/2020.02.2/confd\_api\_bridge:0.7.1-00005555

Image ID: docker-pullable://docker.10.192.1.1.nip.io/cee-2020.02.2.33/smi-libraries/ops-center/2020.02.2/confd\_api\_bridge@sha256:01234567890123456789012345678901234567890123456789012345678901234567890123

Image: docker.10.192.1.1.nip.io/cee-2020.02.2.35/smi-apps/cee-ops-center/2020.02.2/product\_confid\_callback:0.7.0-00006666

Image ID: docker-pullable://docker.10.192.1.1.nip.io/cee-2020.02.2.27/smi-apps/cee-ops-center/2020.02.2/product\_confid\_callback@sha256:01234567890123456789012345678901234567890123456789012345678901234567890123

Image: docker.10.192.1.1.nip.io/cee-2020.02.2.35/smi-libraries/ops-center/2020.02.2/ssh\_ui:0.7.1-00007777

Image ID: docker-pullable://docker.10.192.1.1.nip.io/cee-2020.02.2.35/smi-libraries/ops-center/2020.02.2/ssh\_ui@sha256:01234567890123456789012345678901234567890123456789012345678901234567890123

Image: docker.10.192.1.1.nip.io/cee-2020.02.2.35/smi-libraries/ops-center/2020.02.2/confd\_notifications:0.7.1-00008888

Image ID: docker-pullable://docker.10.192.1.1.nip.io/cee-2020.02.2.27/smi-libraries/ops-center/2020.02.2/confd\_notifications@sha256:01234567890123456789012345678901234567890123456789012345678901234567890123

#### 4. 执行 `kubectl describe pod` 命令。

#### 5. 执行 `kubectl get pods -A -o wide | grep -v "Running"` 命令检查Kubernetes群集中所有名称空间中Pod的状态。

```
cloud-user@lab-deployer-cm-primary:~$ kubectl describe pod charts-cee-2020-02-2-1-1-0 -n registry
```

Volumes:

charts-volume:

Type: HostPath (bare host directory volume)

Path: /data/software/packages/cee-2020.02.2.1.1/data/charts

HostPathType: DirectoryOrCreate

Events:

Type Reason Age From Message

-----

Normal BackOff 9m3s (x104861 over 16d) kubelet **Back-off pulling image "dockerhub.cisco.com/smi-fuse-docker-internal/smi-apps/distributed-registry/2020.02.2/apache:0.1.0-abcd123"**

Warning Failed 3m59s (x104884 over 16d) kubelet Error: ImagePullBackOff

```
cloud-user@lab-deployer-cm-primary:$ kubectl describe pod charts-cluster-deployer-2020-02-2-35-0 -n registry
```

Name: charts-cluster-deployer-2020-02-2-35-0

Namespace: registry

Priority: 1000000000

Priority Class Name: infra-critical

Node: lab-deployer-cm-primary/10.192.1.1

Start Time: Thu, 01 Jan 2022 13:05:03 +0000  
Labels: chart-app=charts-cluster-deployer-2020-02-2-35  
component=charts  
controller-revision-hash=charts-cluster-deployer-2020-02-2-35-589fdf57b8  
registry=cluster-deployer-2020.02.2.35  
statefulset.kubernetes.io/pod-name=charts-cluster-deployer-2020-02-2-35-0  
Annotations: cni.projectcalico.org/podIP: 10.10.10.180/32  
cni.projectcalico.org/podIPs: 10.10.10.180/32  
sidecar.istio.io/inject: false  
Status: Pending  
IP: 10.10.10.180  
IPs:  
IP: 10.10.10.180  
Controlled By: StatefulSet/charts-cluster-deployer-2020-02-2-35  
Containers:  
charts:  
Container ID:  
Image: dockerhub.cisco.com/smi-fuse-docker-internal/smi-apps/distributed-registry/2020.02.2/apache:0.1.0-abcd123  
Image ID:  
Port: 8080/TCP  
Host Port: 0/TCP  
State: Waiting  
Reason: ImagePullBackOff  
Ready: False  
Restart Count: 0  
Environment: <none>  
Mounts:  
/var/run/secrets/kubernetes.io/serviceaccount from default-token-qcmhx (ro)  
/var/www/html/cluster-deployer-2020.02.2.35 from charts-volume (rw)  
Conditions:  
Type Status  
Initialized True  
Ready False  
ContainersReady False  
PodScheduled True  
Volumes:  
charts-volume:  
Type: HostPath (bare host directory volume)  
Path: /data/software/packages/cluster-deployer-2020.02.2.35/data/charts  
HostPathType: DirectoryOrCreate  
default-token-qcmhx:  
Type: Secret (a volume populated by a Secret)  
SecretName: default-token-qcmhx  
Optional: false  
QoS Class: BestEffort  
Node-Selectors: <none>  
Tolerations: node.kubernetes.io/not-ready:NoExecute op=Exists for 30s  
node.kubernetes.io/unreachable:NoExecute op=Exists for 30s  
Events:  
Type Reason Age From Message  
-----  
Normal BackOff 118s (x104949 over 16d) kubelet Back-off pulling image  
**"dockerhub.cisco.com/smi-fuse-docker-internal/smi-apps/distributed-registry/2020.02.2/apache:0.1.0-abcd123"**

```
cloud-user@lab-deployer-cm-primary: /data/software/packages/cluster-deployer-2020.02.2.35/data/charts$  
cloud-user@lab-deployer-cm-primary: $ kubectl get pods -A -o wide | grep -v "Running"  
NAMESPACE NAME READY STATUS RESTARTS AGE IP NODE NOMINATED NODE READINESS GATES  
registry charts-cee-2020-02-2-1-1-0 0/1 ImagePullBackOff 0 100d 10.10.10.178 lab-deployer-cm-primary <none> <none>  
registry charts-cluster-deployer-2020-02-2-35-0 0/1 ErrImagePull 0 100d 10.10.10.180 lab-deployer-cm-primary <none> <none>
```

```
registry registry-cee-2020-02-2-1-1-0 0/1 ErrImagePull 0 100d 10.10.10.198 lab-deployer-cm-
primary <none> <none>
registry registry-cluster-deployer-2020-02-2-35-0 0/1 ImagePullBackOff 0 100d 10.10.10.152
lab-deployer-cm-primary <none> <none>
registry software-unpacker-0 0/1 ImagePullBackOff 0 100d 10.10.10.160 lab-deployer-cm-
primary <none> <none>
```

## 6. 确认集群部署器中的文件。

```
cloud-user@lab-deployer-cm-primary:/data/software/packages$ cd cluster-deployer-
2020.02.2.35/
cloud-user@lab-deployer-cm-primary:/data/software/packages/cluster-deployer-2020.02.2.35$
ll
total 12
drwxrwxr-x 3 303 303 4096 Jan 1 2021 ./
drwxrwxrwt 5 root root 4096 Mar 1 11:39 ../
drwxrwxr-x 5 303 303 4096 Jan 1 2021 data/
cloud-user@lab-deployer-cm-primary:/data/software/packages/cluster-deployer-2020.02.2.35$
cd data/
cloud-user@lab-deployer-cm-primary:/data/software/packages/cluster-deployer-
2020.02.2.35/data$ ll
total 20
drwxrwxr-x 5 303 303 4096 Jan 1 2021 ./
drwxrwxr-x 3 303 303 4096 Jan 1 2021 ../
drwxr-xr-x 2 303 303 4096 Mar 1 12:55 charts/
drwxr-xr-x 4 303 303 4096 Aug 10 2021 deployer-inception/
drwxr-xr-x 3 303 303 4096 Aug 10 2021 docker/
cloud-user@lab-deployer-cm-primary:/data/software/packages/cluster-deployer-
2020.02.2.35/data$ cd charts/
cloud-user@lab-deployer-cm-primary:/data/software/packages/cluster-deployer-
2020.02.2.35/data/charts$ ll
total 116
drwxr-xr-x 2 303 303 4096 Mar 1 12:55 ./
drwxrwxr-x 5 303 303 4096 Jan 1 2021 ../
-rw-r--r-- 1 303 303 486 Aug 10 2021 index.yaml
-rw-r--r-- 1 303 303 102968 Mar 1 12:55 smi-cluster-deployer-1.1.0-2020-02-2-1144-
210826141421-15f3d5b.tgz
cloud-user@lab-deployer-cm-primary:/tmp$
cloud-user@lab-deployer-cm-primary:/tmp$ ls /tmp/k8s-* -al
-rw-r--r-- 1 root root 2672 Sep 7 2021 /tmp/k8s-offline.tgz.txt
```

## 解决方案

此问题被认为是由群集同步失败引起的。解决方案是从初始服务器到CM高可用性(HA)运行集群同步。

1. 使用SSH连接到检查服务器。
2. 使用SSH连接到运营中心端口2022。

```
cloud-user@all-in-one-vm:~$ ssh admin@localhost -p 2022
```

3. 验证群集是否在Inception Server中。

```
[all-in-one-base-vm] SMI Cluster Deployer# show clusters
```

4. 验证并确认集群的配置是否正确。在本示例中，集群名称为lab-deployer。

```
[all-in-one-base-vm] SMI Cluster Deployer# show running-config clusters lab-deployer
```

5. 运行群集同步。

```
[all-in-one-base-vm] SMI Cluster Deployer# clusters lab-deployer actions sync run debug
```

6. 监控同步日志。

```
[all-in-one-base-vm] SMI Cluster Deployer# monitor sync-logs lab-deployer
```

Successful cluster sync logs example below :

```
Wednesday 01 December 2021 01:01:01 +0000 (0:00:00.080) 0:33:08.600 ****
```

```
=====
```

```
2021-12-01 01:01:01.230 DEBUG cluster_sync.ca-deployer: Cluster sync successful
```

```
2021-12-01 01:01:01.230 DEBUG cluster_sync.ca-deployer: Ansible sync done
```

```
2021-12-01 01:01:01.231 INFO cluster_sync.ca-deployer: _sync finished. Opening lock
```

## 7. 使用SSH连接到集群管理器，并确保Pod处于“运行”状态。

```
cloud-user@lab-deployer-cm-primary:~$ kubectl get pods -A -o wide | grep -v "Running"
```

## 关于此翻译

思科采用人工翻译与机器翻译相结合的方式将此文档翻译成不同语言，希望全球的用户都能通过各自的语言得到支持性的内容。

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