

Ultra-M UCS 240M4單硬碟故障 — 熱交換程式 — vEPC

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簡介

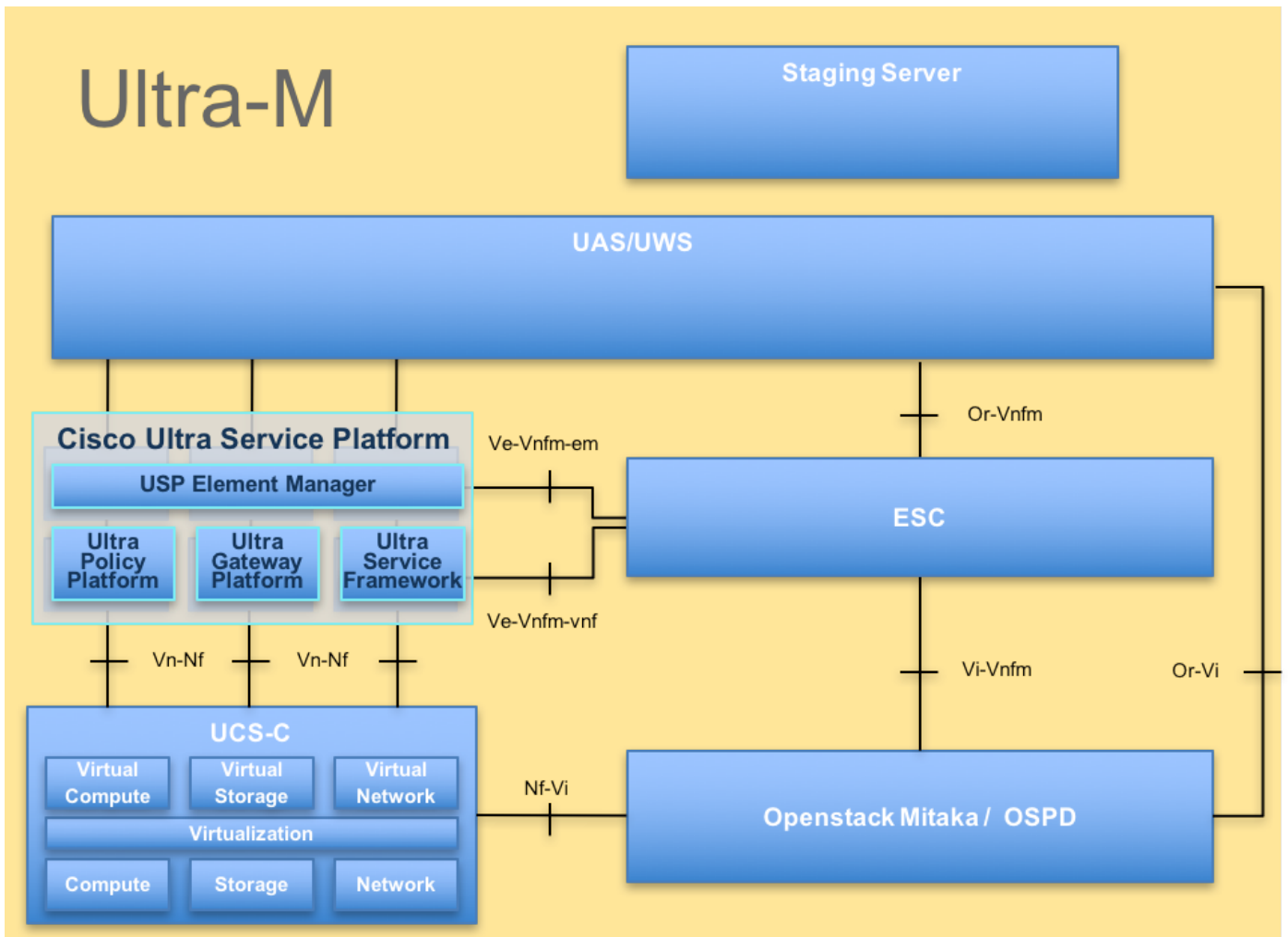
本文檔介紹在託管StarOS虛擬網路功能(VNF)的Ultra-M設定中更換伺服器中有故障的硬碟驅動器(HDD)所需的步驟。

背景資訊

Ultra-M是經過預打包和驗證的虛擬化移動資料包核心解決方案，旨在簡化VNF的部署。OpenStack是適用於Ultra-M的虛擬化基礎架構管理器(VIM)，包含以下節點型別：

- 計算
- 對象儲存磁碟 — 計算 (OSD — 計算)
- 控制器
- OpenStack平台 — 導向器(OSPD)

Ultra-M的高級體系結構及涉及的元件如下圖所示：



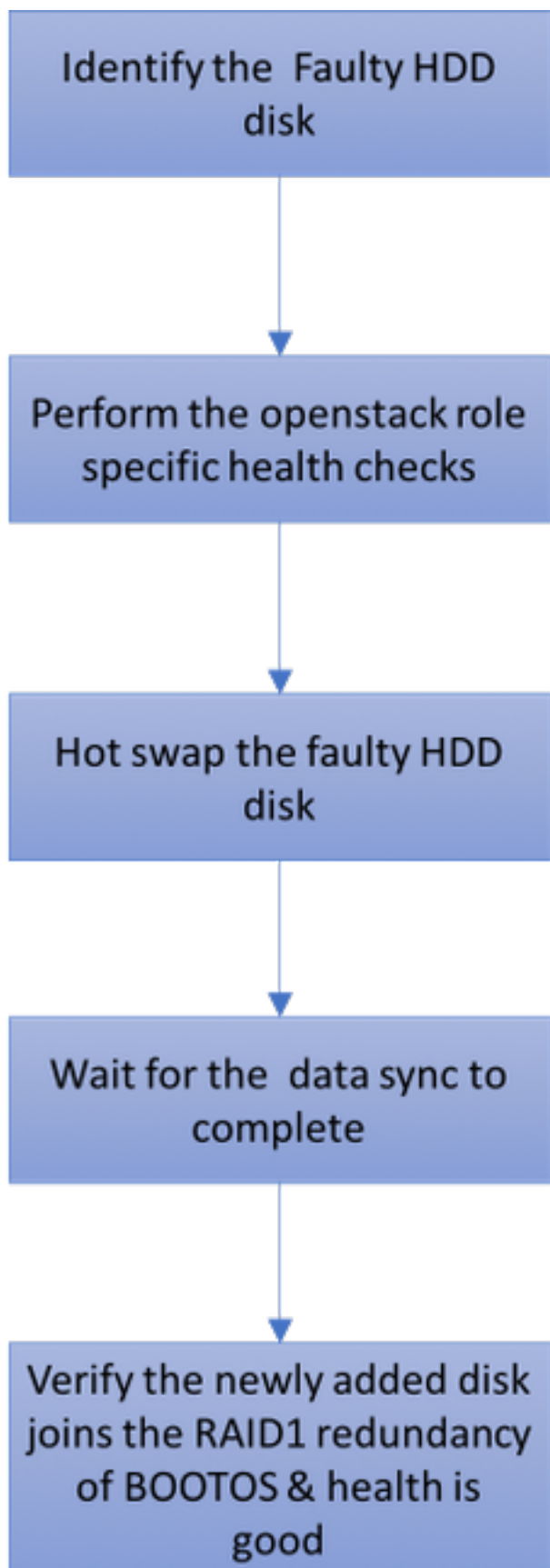
UltraM體系結構本文檔面向熟悉Cisco Ultra-M平台的思科人員，詳細說明了更換OSPD伺服器時在OpenStack級別上需要執行的步驟。

附註：Ultra M 5.1.x版本用於定義本文檔中的過程。

縮寫

VNF	虛擬網路功能
CF	控制功能
SF	服務功能
ESC	彈性服務控制器
澳門幣	程式方法
OSD	對象儲存磁碟
硬碟	硬碟驅動器
固態硬碟	固態驅動器
VIM	虛擬基礎架構管理員
虛擬機器	虛擬機器
EM	元素管理器
UAS	Ultra自動化服務
UUID	通用唯一識別符號

MoP的工作流程



單HDD故障

1. 每台裸機伺服器將配置兩個HDD驅動器，以在Raid 1配置中充當BOOT DISK。在單HDD故障的情況下，由於存在RAID 1級冗餘，故障的HDD驅動器可以熱交換。
2. 更換UCS C240 M4伺服器上故障元件的過程可從以下網址獲得：[更換伺服器元件](#)。

- 3.在單硬碟出現故障的情況下，只有故障硬碟會進行熱交換，因此更換新磁碟後不需要執行BIOS升級過程。
- 4.更換磁碟後，等待磁碟之間的資料同步。這可能需要幾個小時才能完成。
- 5.在基於OpenStack(Ultra-M)的解決方案中，UCS 240M4裸機伺服器可以承擔以下角色之一：計算、OSD — 計算、控制器和OSPD。每個伺服器角色處理單硬碟故障所需的步驟都相同，本節介紹在對磁碟進行熱插拔之前要執行的運行狀況檢查。

Compute Server上的單HDD故障

- 1.如果在充當Compute節點的UCS 240M4中觀察到HDD驅動器出現故障，請在最終執行故障磁碟的熱交換之前執行這些運行狀況檢查
- 2.確定此伺服器上運行的VM，並驗證這些功能的狀態是否正常。

確定計算節點中託管的VM:

確定託管在計算伺服器上的虛擬機器，並驗證它們是否處於活動狀態且正在運行。可能發生兩種情況：

- 1.計算伺服器僅包含SF VM。

```
[stack@director ~]$ nova list --field name,host | grep compute-10
| 49ac5f22-469e-4b84-badc-031083db0533 | VNF2-DEPLOYM_s8_0_8bc6cc60-15d6-4ead-8b6a-10e75d0e134d |
pod1-compute-10.localdomain | ACTIVE|
```

- 2.計算伺服器包含虛擬機器的CF/ESC/EM/UAS組合。

```
[stack@director ~]$ nova list --field name,host | grep compute-8
| 507d67c2-1d00-4321-b9d1-da879af524f8 | VNF2-DEPLOYM_XXXX_0_c8d98f0f-d874-45d0-af75-88a2d6fa82ea | pod1-compute-8.localdomain | ACTIVE |
| f9c0763a-4a4f-4bbd-af51-bc7545774be2 | VNF2-DEPLOYM_c2_0_df4be88d-b4bf-4456-945a-3812653ee229 | pod1-compute-8.localdomain | ACTIVE |
| 75528898-ef4b-4d68-b05d-882014708694 | VNF2-ESC-ESC-0 | pod1-compute-8.localdomain | ACTIVE |
| f5bd7b9c-476a-4679-83e5-303f0aae9309 | VNF2-UAS-uas-0 | pod1-compute-8.localdomain | ACTIVE |
```

附註：此處顯示的輸出中，第一列與UUID相對應，第二列是VM名稱，第三列是存在VM的主機名。

運行狀況檢查：

- 1.登入StarOS VNF並確定與SF或CF VM對應的卡。使用從「識別計算節點中託管的VM」部分中識別的SF或CF VM的UUID，並識別與UUID對應的卡。

```
[local]VNF2# show card hardware
Tuesday might 08 16:49:42 UTC 2018
<snip>
```

Card 8:

```
Card Type           : 4-Port Service Function Virtual Card
CPU Packages        : 26 [#0, #1, #2, #3, #4, #5, #6, #7, #8, #9, #10, #11, #12, #13, #14,
#15, #16, #17, #18, #19, #20, #21, #22, #23, #24, #25]
CPU Nodes           : 2
CPU Cores/Threads   : 26
Memory              : 98304M (qvpc-di-large)
UUID/Serial Number  : 49AC5F22-469E-4B84-BADC-031083DB0533
<snip>
```

```
[local]VNF2# show card hardware
Tuesday night 08 16:49:42 UTC 2018
<snip>
```

Card 2:

```
Card Type           : Control Function Virtual Card
CPU Packages        : 8 [#0, #1, #2, #3, #4, #5, #6, #7]
CPU Nodes           : 1
CPU Cores/Threads   : 8
Memory              : 16384M (qvpc-di-large)
UUID/Serial Number  : F9C0763A-4A4F-4BBD-AF51-BC7545774BE2
<snip>
```

2. 驗證卡的狀態。

```
[local]VNF2# show card table
Tuesday night 08 16:52:53 UTC 2018
```

Slot	Card Type	Oper State	SPOF	Attach
1: CFC	Control Function Virtual Card	Active	No	
2: CFC	Control Function Virtual Card	Standby	-	
3: FC	4-Port Service Function Virtual Card	Active	No	
4: FC	4-Port Service Function Virtual Card	Active	No	
5: FC	4-Port Service Function Virtual Card	Active	No	
6: FC	4-Port Service Function Virtual Card	Active	No	
7: FC	4-Port Service Function Virtual Card	Active	No	
8: FC	4-Port Service Function Virtual Card	Active	No	
9: FC	4-Port Service Function Virtual Card	Active	No	
10: FC	4-Port Service Function Virtual Card	Standby	-	

3. 登入到「計算」節點中託管的ESC並檢查狀態。

```
[admin@VNF2-esc-esc-0 esc-cli]$ escadm status
0 ESC status=0 ESC Master Healthy
```

4. 登入到「計算」節點中託管的EM並檢查狀態。

```
ubuntu@vnfd2deploymentem-1:~$ ncs_cli -u admin -C

admin connected from 10.225.247.142 using ssh on vnfd2deploymentem-1

admin@scm# show ems
EM          VNFM
ID  SLA  SCM  PROXY
-----
3   up   up   up
6   up   up   up
```

5. 登入到「計算」節點中託管的UAS並檢查狀態。

```

ubuntu@autovnf2-uas-1:~$ sudo su
root@autovnf2-uas-1:/home/ubuntu# confd_cli -u admin -C
Welcome to the ConfD CLI
admin connected from 127.0.0.1 using console on autovnf2-uas-1
autovnf2-uas-1#show uas ha
uas ha-vip 172.18.181.101
autovnf2-uas-1#
autovnf2-uas-1#
autovnf2-uas-1#show uas
uas version 1.0.1-1
uas state ha-active
uas ha-vip 172.18.181.101
INSTANCE IP    STATE    ROLE
-----
172.18.180.4  alive   CONFD-SLAVE
172.18.180.5  alive   CONFD-MASTER
172.18.180.8  alive   NA

autovnf2-uas-1#show errors
% No entries found.

```

6.如果運行狀況檢查正常，請繼續執行有故障的磁碟熱交換過程，並等待資料同步，因為同步需要幾個小時才能完成。請參閱[更換伺服器元件](#)。

7.重複這些運行狀況檢查過程，以確認託管在計算節點上的虛擬機器的運行狀況已恢復。

控制器伺服器上的單HDD故障

1.如果在充當控制器節點的UCS 240M4中觀察到硬碟驅動器出現故障，請在執行故障磁碟的熱交換之前執行運行狀況檢查。

2.檢查控制器上的起搏器狀態。

3.登入其中一個活動控制器並檢查起搏器狀態。所有服務必須在可用控制器上運行並在出現故障的控制器上停止。

```

[heat-admin@pod1-controller-0 ~]$ sudo pcs status
Cluster name: tripleo_cluster
Stack: corosync
Current DC: pod1-controller-0 (version 1.1.15-11.e17_3.4-e174ec8) - partition with quorum
Last updated: Thu Jun 28 07:53:06 2018          Last change: Wed Jan 17 11:38:00 2018 by root
via cibadmin on pod1-controller-0

3 nodes and 22 resources conimaged

Online: [ pod1-controller-0 pod1-controller-1 pod1-controller-2 ]

Full list of resources:

ip-10.2.2.2      (ocf::heartbeat:IPAddr2):      Started pod1-controller-0
ip-11.120.0.42  (ocf::heartbeat:IPAddr2):      Started pod1-controller-1
ip-11.119.0.42  (ocf::heartbeat:IPAddr2):      Started pod1-controller-2
ip-11.120.0.50  (ocf::heartbeat:IPAddr2):      Started pod1-controller-0
ip-11.118.0.48  (ocf::heartbeat:IPAddr2):      Started pod1-controller-1
ip-192.200.0.102 (ocf::heartbeat:IPAddr2):      Started pod1-controller-2
Clone Set: haproxy-clone [haproxy]
  Started: [ pod1-controller-0 pod1-controller-1 pod1-controller-2 ]
Master/Slave Set: galera-master [galera]
  Masters: [ pod1-controller-0 pod1-controller-1 pod1-controller-2 ]
Clone Set: rabbitmq-clone [rabbitmq]

```

```
Started: [ pod1-controller-0 pod1-controller-1 pod1-controller-2 ]
Master/Slave Set: redis-master [redis]
Masters: [ pod1-controller-0 ]
Slaves: [ pod1-controller-1 pod1-controller-2 ]
openstack-cinder-volume (systemd:openstack-cinder-volume): Started pod1-controller-0
my-ipmilan-for-controller-0 (stonith:fence_ipmilan): Started pod1-controller-1
my-ipmilan-for-controller-1 (stonith:fence_ipmilan): Started pod1-controller-2
my-ipmilan-for-controller-2 (stonith:fence_ipmilan): Started pod1-controller-0
```

Daemon Status:

```
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
```

4. 檢查活動控制器中的MariaDB狀態。

```
[stack@director] nova list | grep control
| 4361358a-922f-49b5-89d4-247a50722f6d | pod1-controller-0 | ACTIVE | - | Running |
ctlplane=192.200.0.102 |
| d0f57f27-93a8-414f-b4d8-957de0d785fc | pod1-controller-1 | ACTIVE | - | Running |
ctlplane=192.200.0.110 |
```

```
[stack@director ~]$ for i in 192.200.0.102 192.200.0.110 ; do echo "### $i ###" ; ssh heat-admin@$i "sudo mysql --exec=\"SHOW STATUS LIKE 'wsrep_local_state_comment'\"; sudo mysql --exec=\"SHOW STATUS LIKE 'wsrep_cluster_size'\"; done
```

```
### 192.200.0.152 ###
```

```
Variable_name Value
wsrep_local_state_comment Synced
```

```
Variable_name Value
```

```
wsrep_cluster_size 2
```

```
### 192.200.0.154 ###
```

```
Variable_name Value
wsrep_local_state_comment Synced
```

```
Variable_name Value
```

```
wsrep_cluster_size 2
```

5. 驗證每個作用中控制器是否存在以下線路：

```
wsrep_local_state_comment: Synced
```

```
wsrep_cluster_size: 2
```

6. 檢查作用中控制器中的Rabbitmq狀態。

```
[heat-admin@pod1-controller-0 ~]$ sudo rabbitmqctl cluster_status
Cluster status of node 'rabbit@pod1-controller-0' ...
[{nodes,[{disc,['rabbit@pod1-controller-0','rabbit@pod1-controller-1',
'rabbit@pod1-controller-2']}]},
{running_nodes,['rabbit@pod1-controller-2',
'rabbit@pod1-controller-1',
'rabbit@pod1-controller-0']}],
{cluster_name,<<"rabbit@pod1-controller-0.localdomain">>},
{partitions,[]},
{alarms,[{'rabbit@pod1-controller-2',[]},
{'rabbit@pod1-controller-1',[]},
{'rabbit@pod1-controller-0',[]}]}
```

7. 如果運行狀況檢查正常，請繼續執行有故障的磁碟熱交換過程，並等待資料同步，因為同步需要幾個小時才能完成。請參閱[更換伺服器元件](#)。

8.重複這些運行狀況檢查過程，以確認控制器的運行狀況已恢復。

OSD-Compute Server上的單硬碟故障

如果在充當sn OSD-Compute節點的UCS 240M4中觀察到HDD驅動器故障，請在執行故障磁碟的熱交換之前執行這些運行狀況檢查。

確定OSD計算節點中託管的VM:

確定託管在計算伺服器上的虛擬機器。可能發生兩種情況：

1. OSD-Compute伺服器包含虛擬機器的EM/UAS/自動部署/自動IT組合。

```
[stack@director ~]$ nova list --field name,host | grep osd-compute-0
| c6144778-9afd-4946-8453-78c817368f18 | AUTO-DEPLOY-VNF2-uas-0 | pod1-osd-compute-0.localdomain
| ACTIVE |
| 2d051522-bce2-4809-8d63-0c0e17f251dc | AUTO-IT-VNF2-uas-0 | pod1-osd-compute-0.localdomain |
ACTIVE |
| 507d67c2-1d00-4321-b9d1-da879af524f8 | VNF2-DEPLOYM_XXXX_0_c8d98f0f-d874-45d0-af75-
88a2d6fa82ea | pod1-osd-compute-0.localdomain | ACTIVE |
| f5bd7b9c-476a-4679-83e5-303f0aae9309 | VNF2-UAS-uas-0 | pod1-osd-compute-0.localdomain |
ACTIVE |
```

2.計算伺服器包含虛擬機器的CF/ESC/EM/UAS組合。

```
[stack@director ~]$ nova list --field name,host | grep osd-compute-1
| 507d67c2-1d00-4321-b9d1-da879af524f8 | VNF2-DEPLOYM_XXXX_0_c8d98f0f-d874-45d0-af75-
88a2d6fa82ea | pod1-compute-8.localdomain | ACTIVE |
| f9c0763a-4a4f-4bbd-af51-bc7545774be2 | VNF2-DEPLOYM_c1_0_df4be88d-b4bf-4456-945a-
3812653ee229 | pod1-compute-8.localdomain | ACTIVE |
| 75528898-ef4b-4d68-b05d-882014708694 | VNF2-ESC-ESC-
0 | pod1-compute-8.localdomain | ACTIVE |
| f5bd7b9c-476a-4679-83e5-303f0aae9309 | VNF2-UAS-uas-
0 | pod1-compute-8.localdomain | ACTIVE |
```

附註：此處顯示的輸出中，第一列與UUID相對應，第二列是VM名稱，第三列是存在VM的主機名。

3. Ceph進程在OSD-Compute伺服器上處於活動狀態。

```
[root@pod1-osd-compute-1 ~]# systemctl list-units *ceph*

UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
var-lib-ceph-osd-ceph\x2d11.mount  loaded active mounted /var/lib/ceph/osd/ceph-11
var-lib-ceph-osd-ceph\x2d2.mount    loaded active mounted /var/lib/ceph/osd/ceph-2
var-lib-ceph-osd-ceph\x2d5.mount    loaded active mounted /var/lib/ceph/osd/ceph-5
var-lib-ceph-osd-ceph\x2d8.mount    loaded active mounted /var/lib/ceph/osd/ceph-8
```



```

ceph-osd@11.service          loaded active running Ceph object storage daemon
ceph-osd@2.service          loaded active running Ceph object storage daemon
ceph-osd@5.service          loaded active running Ceph object storage daemon
ceph-osd@8.service          loaded active running Ceph object storage daemon
system-ceph\x2ddisk.slice    loaded active active   system-ceph\x2ddisk.slice
system-ceph\x2dosd.slice     loaded active active   system-ceph\x2dosd.slice
ceph-mon.target             loaded active active   ceph target allowing to start/stop all
ceph-mon@.service instances at once
ceph-osd.target             loaded active active   ceph target allowing to start/stop all
ceph-osd@.service instances at once
ceph-radosgw.target         loaded active active   ceph target allowing to start/stop all
ceph-radosgw@.service instances at once
ceph.target                 loaded active active   ceph target allowing to start/stop all
ceph*@.service instances at once

```

4. 驗證 OSD (HDD磁碟) 到日誌(SSD)的對映是否正常。

```

[heat-admin@pod1-osd-compute-3 ~]$ sudo ceph-disk list
/dev/sda :
  /dev/sda1 other, iso9660
  /dev/sda2 other, xfs, mounted on /
/dev/sdb :
  /dev/sdb1 ceph journal, for /dev/sdc1
  /dev/sdb3 ceph journal, for /dev/sdd1
  /dev/sdb2 ceph journal, for /dev/sde1
  /dev/sdb4 ceph journal, for /dev/sdf1
/dev/sdc :
  /dev/sdc1 ceph data, active, cluster ceph, osd.1, journal /dev/sdb1
/dev/sdd :
  /dev/sdd1 ceph data, active, cluster ceph, osd.7, journal /dev/sdb3
/dev/sde :
  /dev/sde1 ceph data, active, cluster ceph, osd.4, journal /dev/sdb2
/dev/sdf :
  /dev/sdf1 ceph data, active, cluster ceph, osd.10, journal /dev/sdb4

```

5. 驗證 Ceph 運行狀況和 OSD 樹對映是否良好。

```

[heat-admin@pod1-osd-compute-3 ~]$ sudo ceph -s
cluster eb2bb192-b1c9-11e6-9205-525400330666
health HEALTH_OK
  1 mons down, quorum 0,1 pod1-controller-0,pod1-controller-1
monmap e1: 3 mons at {pod1-controller-0=11.118.0.10:6789/0,pod1-controller-1=11.118.0.11:6789/0,pod1-controller-2=11.118.0.12:6789/0}
  election epoch 28, quorum 0,1 pod1-controller-0,pod1-controller-1
osdmap e709: 12 osds: 12 up, 12 in
  flags sortbitwise,require_jewel_osds
pgmap v941813: 704 pgs, 6 pools, 490 GB data, 163 kobjects
  1470 GB used, 11922 GB / 13393 GB avail
    704 active+clean
client io 58580 B/s wr, 0 op/s rd, 7 op/s wr

```

```
[heat-admin@pod1-osd-compute-3 ~]$ sudo ceph osd tree
ID WEIGHT  TYPE NAME                UP/DOWN REWEIGHT PRIMARY-AFFINITY
-1 13.07996 root default
-2  4.35999  host pod1-osd-compute-0
  0  1.09000  osd.0                    up  1.00000  1.00000
  3  1.09000  osd.3                    up  1.00000  1.00000
  6  1.09000  osd.6                    up  1.00000  1.00000
  9  1.09000  osd.9                    up  1.00000  1.00000
-4  4.35999  host pod1-osd-compute-2
  2  1.09000  osd.2                    up  1.00000  1.00000
  5  1.09000  osd.5                    up  1.00000  1.00000
  8  1.09000  osd.8                    up  1.00000  1.00000
11  1.09000  osd.11                   up  1.00000  1.00000
-5  4.35999  host pod1-osd-compute-3
  1  1.09000  osd.1                    up  1.00000  1.00000
  4  1.09000  osd.4                    up  1.00000  1.00000
  7  1.09000  osd.7                    up  1.00000  1.00000
10  1.09000  osd.10                   up  1.00000  1.00000
```

6.如果運行狀況檢查正常，請繼續執行有故障的磁碟熱交換過程，並等待資料同步，因為同步需要幾個小時才能完成。請參閱[更換伺服器元件](#)。

7.重複這些運行狀況檢查過程，以確認在OSD-Compute節點上託管的VM的運行狀況已恢復。

OSPD伺服器上的單HDD故障

1.如果在充當OSPD節點的UCS 240M4中觀察到硬碟驅動器出現故障，請在啟動故障磁碟的熱交換之前執行這些運行狀況檢查。

2.檢查OpenStack堆疊的狀態和節點清單。

```
[stack@director ~]$ source stackrc
[stack@director ~]$ openstack stack list --nested
[stack@director ~]$ ironic node-list
[stack@director ~]$ nova list
```

3.從OSP-D節點檢查所有Undercloud服務是否處於已載入、活動和運行狀態。

```
[stack@director ~]$ systemctl list-units "openstack*" "neutron*" "openvswitch*"

UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
neutron-dhcp-agent.service          loaded active running OpenStack Neutron DHCP Agent
neutron-openvswitch-agent.service   loaded active running OpenStack Neutron Open vSwitch
Agent
neutron-ovs-cleanup.service          loaded active exited OpenStack Neutron Open vSwitch
Cleanup Utility
neutron-server.service               loaded active running OpenStack Neutron Server
openstack-aodh-evaluator.service     loaded active running OpenStack Alarm evaluator
service
openstack-aodh-listener.service      loaded active running OpenStack Alarm listener
service
openstack-aodh-notifier.service      loaded active running OpenStack Alarm notifier
service
openstack-ceilometer-central.service loaded active running OpenStack ceilometer central
agent
openstack-ceilometer-collector.service loaded active running OpenStack ceilometer collection
service
openstack-ceilometer-notification.service loaded active running OpenStack ceilometer
```

```

notification agent
openstack-glance-api.service          loaded active running OpenStack Image Service (code-
named Glance) API server
openstack-glance-registry.service     loaded active running OpenStack Image Service (code-
named Glance) Registry server
openstack-heat-api-cfn.service         loaded active running Openstack Heat CFN-compatible
API Service
openstack-heat-api.service            loaded active running OpenStack Heat API Service
openstack-heat-engine.service         loaded active running Openstack Heat Engine Service
openstack-ironic-api.service          loaded active running OpenStack Ironic API service
openstack-ironic-conductor.service    loaded active running OpenStack Ironic Conductor
service
openstack-ironic-inspector-dnsmasq.service loaded active running PXE boot dnsmasq service for
Ironic Inspector
openstack-ironic-inspector.service    loaded active running Hardware introspection service
for OpenStack Ironic
openstack-mistral-api.service         loaded active running Mistral API Server
openstack-mistral-engine.service      loaded active running Mistral Engine Server
openstack-mistral-executor.service    loaded active running Mistral Executor Server
openstack-nova-api.service            loaded active running OpenStack Nova API Server
openstack-nova-cert.service           loaded active running OpenStack Nova Cert Server
openstack-nova-compute.service        loaded active running OpenStack Nova Compute Server
openstack-nova-conductor.service      loaded active running OpenStack Nova Conductor Server
openstack-nova-scheduler.service      loaded active running OpenStack Nova Scheduler Server
openstack-swift-account-reaper.service loaded active running OpenStack Object Storage
(swift) - Account Reaper
openstack-swift-account.service       loaded active running OpenStack Object Storage
(swift) - Account Server
openstack-swift-container-updater.service loaded active running OpenStack Object Storage
(swift) - Container Updater
openstack-swift-container.service     loaded active running OpenStack Object Storage
(swift) - Container Server
openstack-swift-object-updater.service loaded active running OpenStack Object Storage
(swift) - Object Updater
openstack-swift-object.service        loaded active running OpenStack Object Storage
(swift) - Object Server
openstack-swift-proxy.service         loaded active running OpenStack Object Storage
(swift) - Proxy Server
openstack-zaqar.service               loaded active running OpenStack Message Queuing
Service (code-named Zaqar) Server
openstack-zaqar@1.service             loaded active running OpenStack Message Queuing
Service (code-named Zaqar) Server Instance 1
openvswitch.service                  loaded active exited Open vSwitch

```

LOAD = Reflects whether the unit definition was properly loaded.

ACTIVE = The high-level unit activation state, i.e. generalization of SUB.

SUB = The low-level unit activation state, values depend on unit type.

37 loaded units listed. Pass --all to see loaded but inactive units, too.

To show all installed unit files use 'systemctl list-unit-files'.

4.如果運行狀況檢查正常，請繼續執行有故障的磁碟熱交換過程，並等待資料同步，因為資料同步需要幾個小時才能完成。請參閱[更換伺服器元件](#)。

5.重複這些運行狀況檢查過程，以確認OSPD節點的運行狀況已恢復。