

# Kube-Apiserver Pod連續重新啟動故障排除

## 目錄

[簡介](#)

[必要條件](#)

[需求](#)

[採用元件](#)

[什麼是kube-apiserver?](#)

[問題](#)

[根本原因分析](#)

[恢復步驟](#)

[過帳支票](#)

## 簡介

本文檔介紹用於恢復kube-apiserver pod連續重啟的解決方案。

## 必要條件

### 需求

思科建議您瞭解以下主題：

- 多克和庫伯內特
- 思科使用者微服務基礎架構(SMI)Ultra雲核心通用執行環境(CEE)

### 採用元件

本檔案中的資訊是根據Kubernetes v1.21.0版本。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

## 什麼是kube-apiserver?

- Kubernetes應用程式介面(API)伺服器驗證和配置API對象的資料，這些對象包括Pod、服務、複製控制器等。API Server為呈現狀態傳輸(REST)操作提供服務，並為集群的共用狀態提供前端，所有其他元件通過該共用狀態進行互動。
- Kubernetes API伺服器負責驗證和驗證請求，檢索和更新etcd資料儲存中的資料。事實上，kube-API伺服器是唯一直接與etcd資料儲存區互動的元件。
- 以下是在群集中建立Pod時kube-API伺服器採取的步驟：

a. 驗證使用者

b. 驗證請求

c.檢索資料

d.更新ETCD

e.排程器

f.庫貝萊

- 其他元件 ( 如排程程式、 kube-controller-manager和kubelet ) 使用API伺服器在各自區域的集群中執行更新。

## 問題

連續觀察kube-apiserver-smf-data-master-3重新啟動。在這種情況下，執行kubectl CLI `kubectl get pod -A -o wide | grep apiserver`確定問題：

```
cloud-user@smf-data-master-1:~$ kubectl get pods -A -o wide | grep apiserver

kube-system      kube-apiserver-smf-data-master-1          1/1      Running   4
68d      10.192.1.22      smf-data-master-1  <none>    <none>

kube-system      kube-apiserver-smf-data-master-2          1/1      Running   4
68d      10.192.1.23      smf-data-master-2  <none>    <none>

kube-system      kube-apiserver-smf-data-master-3          0/1      Running   2
68d      10.192.1.24      smf-data-master-3  <none>    <none>
```

```
cloud-user@smf-data-master-1:~$
```

在`kubecttl logs <kube-apiserver_pod_name> -n kube-system`中觀察到以下錯誤：

```
cloud-user@smf-data-master-1:~$ kubectl logs kube-apiserver-smf-data-master-3 -n kube-system
E1116 20:09:52.635602      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:09:53.691253      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:09:54.751145      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:09:55.808782      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:09:56.865492      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:09:57.906426      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:09:58.963801      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:10:00.027583      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:10:01.084615      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
```

```
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:10:02.206947      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:10:03.256261      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:10:04.313860      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
E1116 20:10:05.363353      1 cacher.go:419] cacher (*core.Secret): unexpected ListAndWatch
error: failed to list *core.Secret: unable to transform key "/registry/secrets/cee-
dnceed21/alert-logger-sa-token-dzhkb": invalid padding on input; reinitializing...
```

要恢復，您必須嘗試使用CLI `kubettl delete pod <kube-apiserver_pod_name> -n kube-system`重新啟動kube-apiserver pod，但無幫助。

## 根本原因分析

進一步分析發現，kube-apiserver不斷重新啟動的master-3與其他主節點之間的secret值差異導致了此問題。

From Master-1:

```
cloud-user@smf-data-master-1:~$ cat /data/kubernetes/secrets.conf
```

```
apiVersion: apiserver.config.k8s.io/v1
```

```
kind: EncryptionConfiguration
```

```
resources:
```

```
- resources:
```

```
- secrets
```

```
providers:
```

```
- aescbc:
```

```
  keys:
```

```
    - name: key1
```

```
      secret: BG5hleucj1D5ZDkFYUxoGLHHhBA/AeoNruHM0i70/ZI= <<<<<<<<<<<<<
```

```
- identity: {}
```

```
cloud-user@smf-data-master-1:~$
```

From Master-3:

```
cloud-user@smf-data-master-3:~$ cat /data/kubernetes/secrets.conf
```

```

apiVersion: apiserver.config.k8s.io/v1

kind: EncryptionConfiguration

resources:

- resources:

  - secrets

providers:

- aescbc:

  keys:

  - name: key1

    secret: XK+7mbh3YEnMdqswtySQ1d6QRehg+K6/J1d2e3EnMvI= <<<<<<<<<

- identity: {}

cloud-user@smf-data-master-3:~$

```

## 恢復步驟

1. 作為恢復的一部分，請將master-3的當前機密複製到備份檔案：

```

cloud-user@smf-data-master-3:~$ sudo cp /data/kubernetes/secrets.conf
/data/kubernetes/secrets.conf-bkp

```

2. 編輯金鑰，在Master-3中配置金鑰，並將secret的值更改為其他主節點中看到的值。

```

cloud-user@smf-data-master-3:~$ sudo vim /data/kubernetes/secrets.conf

```

```

apiVersion: apiserver.config.k8s.io/v1

kind: EncryptionConfiguration

resources:

- resources:

  - secrets

providers:

- aescbc:

  keys:

  - name: key1

    secret: XK+7mbh3YEnMdqswtySQ1d6QRehg+K6/J1d2e3EnMvI= <---- Change this value to
"BG5hleucj1D5ZDkFYUxoGLHHhBA/AeoNruHM0i70/ZI=" as in other Master nodes

- identity: {}

```

3. 重新啟動Master-3上的kube-apiserver容器：

```
cloud-user@smf-data-master-3:~$ sudo docker ps -f "name=k8s_kube-apiserver" -q | xargs sudo
docker restart
```

## 過帳支票

從主節點驗證Kubernetes:

```
cloud-user@pod-name-smf-master-1:~$ kubectl get pods -A -o wide | grep kube-apiserver
```

現在，所有Pod必須均已啟動且必須運行無任何重新啟動。