Cinder Volume Multi-Attach

Feature Summary and Revision History

Summary Data

Applicable Product(s) or Functional Area	• P-GW • SAEGW
Applicable Platform(s)	• VPC-DI
Feature Default	Disabled - Configuration Required to Enable
Related Changes in This Release	Not Applicable
Related Documentation	• *P-GW Administration Guide* • *SAEGW Administration Guide* • *Statistics and Counters Reference*

Revision History

Revision Details	Release
Enhancement to the cinder volume feature supports the following functionalities: • Monitors the system volume during volume attach and detach using a CLI command. • Modification to the switchover reason when the multi-attach cinder volume detaches from the active CF card. • Raise of SNMP trap when the standby CF card from active VNF detects a volume detach.	2024.02.0
First introduced.	21.25

Feature Description

In the existing infrastructure, operational issues developed when working with Virtual Customer Premises Equipment (VCPE) and RedHat. The Recover VM functionality brings down the VM Control Function (CF) of QvPC-DI and tries to bring it back up on a different compute host due to compute host failures. When a new CF instance comes up and RAID1 is formed, the active CF instance performs disk synchronization over the iSCSI channel. This process is done block by block and iterates over the entire disk. Disk synchronization takes place over DI-LAN. When disk sizes are larger than 250GB, it takes time depending on how storage is configured, and DI-LAN network bandwidth and traffic.

To overcome this issue, OSP16.1 is used to support the Cinder volume multi-attach. CF1 (Active) and CF2 (Standby) of QvPC-DI connect to the same multi-attach volume when bringing up the orchestrator. StarOS detects if CF1 and CF2 are connected to the same disk volume over the iSCSI channel. If a cinder volume multi-attach case is detected, the HD-RAID is formed using the HD-local disk alone (disk connected to active CF). Therefore, it avoids the HD-RAID mirroring to solve the operational issues.

For disk failure in multi-attach, CF switchover is not possible as both CFs point to the same volume. If a disk failure is detected for Cinder volume multi-attach, it initiates an automatic ICSR switchover. The Interchassis Session Recovery (ICSR) setup is used to handle disk failure scenarios for Cinder volume multi-attach.

Configuration

1. Use the following configuration commands to Cinder multi-attach volume without starting the ISCI channel :

```
configure
  hd raid
```

```
        single disk
    end
```

2. Use the following CLI command to enable the mulit-attach monitoring for system volume attach and detach from the active CF.

```
Config
Context SRP
service-redundancy-protocol
monitor system volume
end
```

Monitoring and Troubleshooting

This section provides information on how to monitor and troubleshoot this feature using show commands.

Show Commands and Outputs

This section provides information regarding show commands and their outputs for this feature.

show hd raid verbose

The following new field is added to the output of this command:

- HD Raid

  - Degraded—No (Multiattach)

The following is a sample output:

```
HD RAID:
  State               : Available (clean)
  Degraded            : No(Multiattach)
  UUID                : 643094ff:2cb03262:6e34e7e0:eddbca63
  Size                : 214GB (214000000000 bytes)
  Action              : Idle
  Disk                : hd-local1
  State               : In-sync component
  Created             : Tue Apr  9 09:00:17 2024
  Updated             : Wed Apr 24 02:21:18 2024
  Events              : 113252
  Model               : QEMU QEMU HARDDISK 2.5+
  Serial Number       : d6ae9d7e-12b1-4b62-93c3-1946ae882113
  Location            : CFC1 A7E5A7CF-561C-48A9-8784-F9580A3A7DAD
  Size                : 214.7GB (214748364800 bytes)
  Disk                : hd-remote1
  State               : Valid image of 643094ff:2cb03262:6e34e7e0:eddbca63
  Created             : Tue Apr  9 09:00:17 2024
  Updated             : Wed Apr 24 02:21:18 2024
  Events              : 113252
  Model               : QEMU QEMU HARDDISK 2.5+
  Serial Number       : d6ae9d7e-12b1-4b62-93c3-1946ae882113
  Location            : CFC2 59AE2254-E3C6-4E8C-8A94-03556C1B2EEB
  Size                : 214.7GB (214748364800 bytes)
```

show srp monitor

The **show srp monitor** command is extended to display the volume monitor status for multi-attach cinder volumes.

```
Auth. probe monitor state: Success
Auth. probe monitors up:   0
……
…….
VPP monitor state:         Success
SX monitor state:          Success
Volume monitor state:      Success

[local]laas-setup# show srp monitor volume
+----- Type:  (A) - Auth. probe  (B) - BGP  (D) - Diameter  (F) - BFD  (E) - EGQC
|                   (C) - Card (V) - VPP  (S) - Sx  (M) - Multiattach Cinder Volume
|
|+---- State: (I) - Initializing (U) - Up   (D) - Down
||
||+--- GroupId
|||
vvv IP Addr        Port  Context(VRF Name)                Last Update
-------------------------------------------------------------------------
MI-  -             -         -                  Tue Feb 06 06:04:50 2024
-------------------------------------------------------------------------
```

show srp call-loss statistics

The **show srp call-loss statistics** show command displays the switchover reason as **Cinder Volume failure** on volume detach in the active CF.

```
[local]CXTMVPGWVNC-Primary-11# show srp call-loss statistics
Thursday December 21 16:23:28 UTC 2023
Switchover-4  started at : Thu Dec 21 16:20:44 2023,  took 1 seconds to finish.
    Switchover reason : Cinder Volume failure
```

SNMP

The standby CF card raises the following SNMP traps:

- **StorageNotFound**—volume detach
- **StorageFound**—volume attach

When the switchover occurs due to multi-attach volume detach from an active CF card, the SRPSwitchoverOccurred trap displays the reason as **Cinder Volume Failure**.

```
Internal trap notification 1278
 (SRPSwitchoverOccured)  vpn SRP ipaddr 2002:4888:34:13:386:200:0:11 rtmod
 18 Switchover Reason: (18) Cinder Volume Failure
```

Note When cinder volume is re-attached to the active card, it is not automatically detected by the system unless a soft reload is done.