



Enable Cinder Volume Multi-attach to Multiple VNFs

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Feature Summary and Revision History

Summary Data

Applicable Product(s) or Functional Area	<ul style="list-style-type: none">• P-GW• SAEGW
Applicable Platform(s)	<ul style="list-style-type: none">• VPC-DI
Feature Default	Disabled - Configuration Required to Enable
Related Changes in This Release	Not Applicable
Related Documentation	<ul style="list-style-type: none">• <i>P-GW Administration Guide</i>• <i>SAEGW Administration Guide</i>• <i>Statistics and Counters Reference</i>

Revision History

Revision Details	Release
First introduced.	21.25

Feature Description

Cinder is the OpenStack Block Storage service for providing volumes to the VNFs. Volumes are block storage devices that is attached to instances to enable persistent storage.

In P-GW, prior to OSP 16.0, 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 redundant array of independent disks (RAID1) is formed, the active CF instance performs disk synchronization over the internet Small Computer System Interface (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 . You can use this Cinder multi-attach capability to simultaneously attach volumes to multiple VNF instances.

- CF1 (Active) and CF2 (Standby) of QvPC-DI connects 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 gets formed using the HD-local disk alone (disk connected to active CF). This process avoids the HD-RAID mirroring to solve the operational issues.

Disk Failures in Multi-attach

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.

Monitor System Volume Status

When multi-attach cinder volume fails on the active CF card of vPGW, the monitor system volume functionality under the Service Redundancy Protocol (SRP) global configuration mode allows:

- Monitoring the system volume during volume attach and detach using a CLI command.
- Modification of switchover reason when the multi-attach cinder volume detaches from the active CF card and the SRP switch over happens.
- SNMP traps notification when the standby CF card from the active VNF detects volume detach.

Configure Multi-attach Cinder Volume

Use the following CLI command to enable the system to monitor multi-attach cinder volume status from the active CF.

```
configure
  context context_name
    service-redundancy-protocol
```

```
[ no ] monitor system volume
end
```

NOTES:

- **monitor system volume:** Enables Service Redundancy Protocol (SRP) to monitor volumes.
- **no:** Disables the volume monitoring.

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 about 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 the sample output:

Verify SRP Switchover Reasons through SNMP Traps Notification

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.
