- ► All virtual volume data within any TS7700 can be auto-expired from TVC cache by using scratch category delete expire processing. After a volume is moved to a configured scratch category, any data that is associated with it can be auto-deleted after a defined grace period passes or the volume is reused during a scratch mount.

- ► TVC data's ability to offload to tape or cloud is managed by definitions in the SC.

- ► Active data in a stand-alone disk-only TS7700D, the CP0 partition of a TS7700T or TS7700C, and a DS8000 Object Store partition always remains in the TVC cache.

- ► In a TS7700T or TS7700C, data in a CPx partition is scheduled to be premigrated to tape or cloud by using SC policies. Delay premigration policies can be used to defer movement to tape so that only aged or archive data premigrates to tape.

- ► If a TS7700T or TS7700C CPx partition runs out of space, the cache management function removes or migrates previously premigrated volumes from TVC cache. The volumes that are candidates for removal are chosen based on PG0/PG1 preference groups. In addition, a TS7700T CPx partition can temporarily overspill into CP0 if CP0 space is available when the CPx partition has no migration candidates remaining.

- ► In a TS7700T or TS7700C, volumes that are not in TVC cache during a tape volume mount request are scheduled to be brought back into the disk cache from a physical tape device or cloud object store by using a recall. The entire volume is recalled into TVC cache before it is accessible.

2.3.2 Scratched virtual volumes and the Delete Expire function

To remain compatible with physical tape, logical volumes that are returned to scratch by your TMS retain all previously written content until they are reused or written from BOT. In a virtual tape environment, the indefinite retention of this scratched content can lead to any of the following situations:

- ► TVC might fill up with large amounts of expired data
- ► Stacked volumes might retain an excessive amount of expired data
- ► Stacked volumes fill up with expired data
- ► Object stores continue to use excessive capacity

To help manage this TMS expired content, the TS7700 supports a function that is referred to as *delete expire*. When enabling delete expire processing against a configured scratch category, you can set a grace period for expired volumes 1 hour - 2000 years.

If the volume was not reused when the delay period passes, the volume is marked as a candidate for auto deletion or delete expire. A background process then periodically deletes candidate volumes. The default behavior is to Delete Expire up to 1000 delete-expire candidates per hour. This value can be modified by using the `LI REQ` command.

After the background handler deletes the volume, the volume's active space in TVC is freed. If it was also stacked to one or more physical tapes, that region of physical tape is marked inactive. If it is contained in an object store, it is then marked for pending deletion where another background task periodically deletes objects in the cloud.

The start timer for delete expire processing is set when the volume is moved to a designated scratch category that includes an assigned delete expire value. If the scratch category has no delete expire value that is assigned in the MI, the timer is not set. Setting an initial expire time in the MI categories window is not retroactive for existing content in scratch. Only volumes that are returned to scratch from that point forward are candidates for delete expire. Also, a volume is not a candidate for expire processing until at least 12 hours passes since its last host access.