Automatic removal is temporarily disabled while disaster recovery write protect is enabled on a disk-only cluster so that a DR test can access all production host-written volumes. When the write protect state is lifted, automatic removal returns to normal operation.

- Limited free cache space warning

  This state occurs when less than 3 TB of free space is available that is left in the cache. After the cache passes this threshold and enters the limited-free-cache-space-warning state, write operations can use only an extra 2 TB before the out-of-cache-resources state is encountered. When a TS7700D enters the limited-free-cache-space-warning state, it remains in this state until the amount of free space in the cache exceeds 3.5 TB.

  The following messages can be displayed on the MI during the limited-free-cache-space-warning state:

  - `HYDME0996W`
  - `HYDME1200W`

  For more information about these messages, see IBM Knowledge Center.

  Clarification: Host writes to the TS7700 and inbound copies continue during this state.

- Out-of-cache resources

  This state occurs when less than 1 TB of free space is left in the cache. After the cache passes this threshold and enters the out-of-cache-resources state, it remains in this state until the amount of free space in the cache exceeds 3.5 TB. When a TS7700D is in the out-of-cache-resources state, volumes on that cluster become read-only and one or more out-of-cache-resources messages are displayed on the MI. The following messages can display:

  - `HYDME0997W`
  - `HYDME1133W`
  - `HYDME1201W`

  For more information about these messages, see IBM Knowledge Center.

  Clarification: New host allocations do not choose a TS7700D Cluster in this state as a valid tape volume cache candidate. New host allocations that are issued to a TS7700D Cluster in this state choose a remote tape volume cache instead. If all valid clusters are in this state or cannot accept mounts, the host allocations fail.

  Read mounts can choose the TS7700D Cluster in this state, but modify and write operations fail. Copies inbound to this cluster are queued as deferred until the cluster exits this state.

The start and stop thresholds for each of the active cache capacity states that are defined are listed in Table 4-13.

Table 4-13 Active cache capacity state thresholds

State	Enter state (free space available)	Exit state (free space available)	Host message displayed
Automatic removal	< 4 TB	> 4.5 TB	`CBR3750I` when automatic removal begins