

The deferred copies are processed in the following order:

1. Synchronous-Deferred PG0
2. Synchronous-Deferred PG1
3. Immediate-Deferred PG0
4. Immediate-Deferred PG1
5. Deferred PG0
6. Deferred PG1

In the grid, the following extra tasks can be performed:

- ▶ Remote or Cross-cluster mounts:
 - Using another cluster's cache
 - Another cluster that uses this cluster's cache
- ▶ Cluster coordination traffic:
 - Ownership takeover
 - Volume attribute changes
 - Logical volume insert
 - Configuration

Clarification: Cross-cluster mounts to other clusters do not move data through local cache. Also, reclaim data does not move through the cache.

Cluster families and cooperative replication

Consider a composite library with two or more clusters at a local site and two or more clusters at a remote site. If more than one cluster needs a copy of a volume at the remote site, cluster families make it possible to send only one copy of the data across a long-distance grid link network. When deciding where to source a volume, a cluster gives higher priority to a cluster in its family over a cluster in another family.

Family members are given higher weight when deciding which cluster to prefer for TVC selection.

Members of a family source their copies within the family when possible. In this manner, data does not have to travel across the long link between sites, which optimizes the use of the data link and shortens the copy time. Also, the family members cooperate among themselves, each pulling a copy of separate volume and exchanging them later among family members.

With cooperative replication, a family prefers retrieving a new volume that the family does not have a copy of yet over copying a volume within a family. When fewer than 20 new copies are to be made from other families, the family clusters copy among themselves. Therefore, second copies of volumes within a family are deferred in preference to new volume copies into the family.

When a copy within a family is queued for 12 hours or more, it is given equal priority with copies from other families. This process prevents family copies from stagnating in the copy queue.

For more information about cluster families, see *IBM Virtualization Engine TS7700 Series Best Practices -TS7700 Hybrid Grid Usage*, [WP101656](#).