

gc current/cr block 2-way/3-way

1.

The gc current/cr block 2-way/3-way waits indicate the amount of time a session waited to receive the requested block from the remote instance and the transfer to the block did not encounter any other waits that may be due to the congestion and lms processes being too busy.

In other words, the request for the block was processed immediate and was not busy nor congested.

sessioninstanceblockblockblock

This is best case scenario when transferring blocks is required.

As a result, having high number of gc current/cr block 2-way/3-way waits does not indicate a problem unless the average wait time is high.

blocks

The difference between 2-way/3-way is that number of instances involved in transferring the block from a remote instance to the requested session.

2-way3-wayblockinstancesessioninstances

The 3-way occurs only when the master of the requested block is neither the requesting instance nor sending instance,

so this requires three communications over the network (i.e. requester to master and master to sender and sender to requester), increasing the latency of the block transfer.

block3-way- -block

Therefore, Oracle introduced DRM to reduce the number of 3-way waits by moving the master to the instance that uses the block most often by a large margin.

oracleDRMmaster3

The following wait events indicate that the remotely cached blocks were shipped to the local instance immediately without having been busy, pinned or requiring a log flush:

log flush

- gc current block 2-way
- gc current block 3-way
- gc cr block 2-way
- gc cr block 3-way

The object statistics for gc current blocks received and gc cr blocks received enable quick identification of the indexes and tables which are shared by the active instances.

gc current/cr blocks received

As previously stated, the gc current/cr block 2-way/3-way waits are expected and is the best case scenario when a block transfer is needed,

so the gc current/cr block 2-way/3-way waits normally do not cause a performance problem. These waits become a concern when the average wait time is high.

gc current/cr block 2-way/3-way waitsblocks

2. gc current/cr block 2-way

An instance requests authorization for a block to be accessed in current mode to modify a block, the instance mastering the resource receives the request.

The master has the current version of the block and sends the current copy of the block to the requestor via Cache Fusion and keeps a Past Image (.PI)

If you get this then do the following

Analyze the contention, segments in the "current blocks received" section of AWR

Use application partitioning scheme

Make sure the system has enough CPU power

Make sure the interconnect is as fast as possible

Ensure that socket send and receive buffers are configured correctly

3. gc current/cr block 3-way

An instance requests authorization for a block to be accessed in current mode to modify a block, the instance mastering the resource receives the request and forwards it to the current holder of the block, asking it to relinquish ownership.

The holding instance sends a copy of the current version of the block to the requestor via Cache Fusion and transfers the exclusive lock to the requesting instance.

It also keeps a past Image (PI).