

Silicon Graphics, Inc.

# **XFS Overview & Internals**

## **13 - Monitoring**

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# Monitoring

- TODO: Incorporate Dave Wright's stuff here

# Inodes

- `watch grep inode /proc/slabinfo`
- `sar -v`
  - TODO: Need to install
- `slabtop -s c`
  - Monitor the slab

# PCP Inode Metrics

• ig_attempts	# of looks for inode in memory
• ig_found	# of times inode found in memory
• ig_freecycle	# of fails because inode was busy
• ig_misses	# of times had to go to disk for inode
• ig_dup	# times missed but found from another
• ig_reclaims	# of times recycled the inode's memory
• ig_attrchg	# of times changed inode attributes
• iflush_count	Number of times inodes are being flushed
• icluster_flushcnt	# of times inodes clustered
• icluster_flushinode	# of times not able to inode cluster

# PCP Directory Metrics

- lookup                      Number of file name directory lookups
- create                      Number of directory entry creations
- remove                      Number of directory entry removes
- getdents                      Number of “getdent” operations

# PCP File Attribute Metrics

- attr.get                Number of “get” operations
- attr.set                Number of “set” operations
- attr.remove            Number of “remove” operations
- attr.list                Number of “list” operations

# PCP Allocation Metrics

• <code>allocs.alloc_extent</code>	Number of extents allocated
• <code>allocs.alloc_block</code>	Number of blocks allocated
• <code>allocs.free_extent</code>	Number of extents freed
• <code>allocs.free_block</code>	Number of blocks freed
• <code>alloc_btree.lookup</code>	Number of allocation btree lookups
• <code>alloc_btree.compare</code>	# of compares in alloc btree lookup
• <code>alloc_btree.insrec</code>	Number of extent record inserts in btree
• <code>alloc_btree.delrec</code>	Number of extent record deletes in btree

# PCP Block Map Metrics

• <code>block_map.read_ops</code>	Number of block map reads
• <code>block_map.write_ops</code>	Number of block map writes
• <code>block_map.unmap</code>	Number of block delete operations
• <code>block_map.add_exlist</code>	# of extent list insertions for files
• <code>block_map.del_exlist</code>	# of extent list deletions
• <code>block_map.look_exlist</code>	# of extent list lookups
• <code>block_map.cmp_exlist</code>	# of extent list compares
• <code>bmap_btree.lookup</code>	# of block map btree lookups
• <code>bmap_btree.compare</code>	# of block map compares
• <code>bmap_btree.insrec</code>	# of block map insertions
• <code>bmap_btree.delrec</code>	# of block map deletions



# PCP Journaling Metrics

- transaction.sync Number of transactions waiting to be committed
- transaction.async Number of async transactions waiting
- transaction.empty Transactions that did not do anything
- log.writes Number of log buffer writes
- log.blocks Number of log blocks written
- log.noiclogs Log entry attempt during memory flush
- log.force Calls to xfs\_log\_force
- log.force\_sleep Calls to xs\_log\_force\_sleep

# PCP AIL Metrics

• push_ail.pushes	Number of times the AIL is moved forward
• push_ail.success	Number of times successful
• push_ail.pushbuf	Number of times inode locked – pushbuf called
• push_ail.pinned	Number of times pinned
• push_ail.locked	Number of times locked
• push_ail.flushing	Number of times ail was flushing
• push_ail.restarts	Number of log write restarts
• push_ail.flush	Number of times a log was forced

# PCP Quota Metrics

• reclaims	Number of disk quota reclaims
• reclaims_misses	Number of disk quota reclaim misses
• dquot_dups	Number of duplicates
• cachemisses	Number of times disk quota misses cache
• cachehits	Number of times disk quota in cache
• wants	Number of times dqwants called
• shake_reclaims	Number of shaked reclaims
• inact_reclaims	Number of inactive data reclaims

# xfsstats

- xfsmisc/xfsstats.pl -f

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