
Subject: [PATCH][SHMEM] Factor out sbi->free_inodes manipulations

Posted by [Pavel Emelianov](#) on Thu, 22 Nov 2007 16:57:22 GMT

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The shmem_sb_info structure has a number of free_inodes. This value is altered in appropriate places under spinlock and with the sbi->max_inodes != 0 check.

Consolidate these manipulations into two helpers.

This is minus 30 bytes of shmem.o and minus 4 :) lines of code.

Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

```
diff --git a/mm/shmem.c b/mm/shmem.c
```

```
index e0d4b2e..abba17c 100644
```

```
--- a/mm/shmem.c
```

```
+++ b/mm/shmem.c
```

```
@@ -205,6 +205,29 @@ static void shmem_free_blocks(struct inode *inode, long pages)
 }
 }
```

```
+static int shmem_inc_inodes(struct shmem_sb_info *sbinfo)
```

```
+{
+ if (sbinfo->max_inodes) {
+ spin_lock(&sbinfo->stat_lock);
+ if (!sbinfo->free_inodes) {
+ spin_unlock(&sbinfo->stat_lock);
+ return -ENOMEM;
+ }
+ sbinfo->free_inodes--;
+ spin_unlock(&sbinfo->stat_lock);
+ }
+ return 0;
```

```
+}
```

```
+
```

```
+static void shmem_dec_inodes(struct shmem_sb_info *sbinfo)
```

```
+{
+ if (sbinfo->max_inodes) {
+ spin_lock(&sbinfo->stat_lock);
+ sbinfo->free_inodes++;
+ spin_unlock(&sbinfo->stat_lock);
+ }
+}
```

```
+
```

```
+
```

```
/*
```

```

* shmем_recalc_inode - recalculate the size of an inode
*
@@ -777,11 +800,7 @@ static void shmем_delete_inode(struct inode *inode)
}
}
BUG_ON(inode->i_blocks);
- if (sbinfo->max_inodes) {
- spin_lock(&sbinfo->stat_lock);
- sbinfo->free_inodes++;
- spin_unlock(&sbinfo->stat_lock);
- }
+ shmем_dec_inodes(sbinfo);
  clear_inode(inode);
}

@@ -1370,15 +1389,8 @@ shmем_get_inode(struct super_block *sb, int mode, dev_t dev)
  struct shmем_inode_info *info;
  struct shmем_sb_info *sbinfo = SHMEM_SB(sb);

- if (sbinfo->max_inodes) {
- spin_lock(&sbinfo->stat_lock);
- if (!sbinfo->free_inodes) {
- spin_unlock(&sbinfo->stat_lock);
- return NULL;
- }
- sbinfo->free_inodes--;
- spin_unlock(&sbinfo->stat_lock);
- }
+ if (shmем_inc_inodes(sbinfo))
+ return NULL;

  inode = new_inode(sb);
  if (inode) {
@@ -1422,11 +1434,8 @@ shmем_get_inode(struct super_block *sb, int mode, dev_t dev)
    NULL);
    break;
  }
- } else if (sbinfo->max_inodes) {
- spin_lock(&sbinfo->stat_lock);
- sbinfo->free_inodes++;
- spin_unlock(&sbinfo->stat_lock);
- }
+ } else
+ shmем_dec_inodes(sbinfo);
  return inode;
}

@@ -1676,15 +1685,8 @@ static int shmем_link(struct dentry *old_dentry, struct inode *dir,

```

struct dentr

* but each new link needs a new dentry, pinning lowmem, and
* tmpfs dentries cannot be pruned until they are unlinked.
*/

```
- if (sbinfo->max_inodes) {  
- spin_lock(&sbinfo->stat_lock);  
- if (!sbinfo->free_inodes) {  
- spin_unlock(&sbinfo->stat_lock);  
- return -ENOSPC;  
- }  
- sbinfo->free_inodes--;  
- spin_unlock(&sbinfo->stat_lock);  
- }  
+ if (shmem_inc_inodes(sbinfo))  
+ return -ENOSPC;
```

```
dir->i_size += BOGO_DIRENT_SIZE;
```

```
inode->i_ctime = dir->i_ctime = dir->i_mtime = CURRENT_TIME;
```

```
@@ -1699,14 +1701,8 @@ static int shmem_unlink(struct inode *dir, struct dentry *dentry)
```

```
{  
    struct inode *inode = dentry->d_inode;
```

```
- if (inode->i_nlink > 1 && !S_ISDIR(inode->i_mode)) {  
- struct shmem_sb_info *sbinfo = SHMEM_SB(inode->i_sb);  
- if (sbinfo->max_inodes) {  
- spin_lock(&sbinfo->stat_lock);  
- sbinfo->free_inodes++;  
- spin_unlock(&sbinfo->stat_lock);  
- }  
- }  
+ if (inode->i_nlink > 1 && !S_ISDIR(inode->i_mode))  
+ shmem_dec_inodes(SHMEM_SB(inode->i_sb));
```

```
dir->i_size -= BOGO_DIRENT_SIZE;
```

```
inode->i_ctime = dir->i_ctime = dir->i_mtime = CURRENT_TIME;
```