
Subject: [PATCH] memory cgroup enhancements [2/5] remember charge as cache
Posted by [KAMEZAWA Hiroyuki](#) on Tue, 16 Oct 2007 10:25:10 GMT
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Add PCGF_PAGECACHE flag to page_cgroup to remember "this page is charged as page-cache."
This is very useful for implementing precise accounting in memory cgroup.

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mm/memcontrol.c | 18 ++++++-----
1 file changed, 15 insertions(+), 3 deletions(-)

Index: devel-2.6.23-mm1/mm/memcontrol.c

```
=====
--- devel-2.6.23-mm1.orig/mm/memcontrol.c
+++ devel-2.6.23-mm1/mm/memcontrol.c
@@ -83,6 +83,8 @@ struct page_cgroup {
     struct mem_cgroup *mem_cgroup;
     atomic_t ref_cnt; /* Helpful when pages move b/w */
     /* mapped and cached states */
+ int flags;
+#define PCGF_PAGECACHE (0x1) /* charged as page-cache */
};

enum {
@@ -315,8 +317,8 @@ unsigned long mem_cgroup_isolate_pages(u
    * 0 if the charge was successful
    * < 0 if the cgroup is over its limit
    */
-int mem_cgroup_charge(struct page *page, struct mm_struct *mm,
-    gfp_t gfp_mask)
+static int mem_cgroup_charge_common(struct page *page, struct mm_struct *mm,
+    gfp_t gfp_mask, int is_cache)
{
    struct mem_cgroup *mem;
    struct page_cgroup *pc;
@@ -418,6 +420,10 @@ noreclaim:
    atomic_set(&pc->ref_cnt, 1);
    pc->mem_cgroup = mem;
    pc->page = page;
+ if (is_cache)
+     pc->flags = PCGF_PAGECACHE;
+ else
+     pc->flags = 0;
    if (page_cgroup_assign_new_page_cgroup(page, pc)) {
```

```

/*
 * an another charge is added to this page already.
@@ -442,6 +448,12 @@ err:
    return -ENOMEM;
}

+int mem_cgroup_charge(struct page *page, struct mm_struct *mm,
+  gfp_t gfp_mask)
+{
+ return mem_cgroup_charge_common(page, mm, gfp_mask, 0);
+}
+
/*
 * See if the cached pages should be charged at all?
 */
@@ -454,7 +466,7 @@ int mem_cgroup_cache_charge(struct page

    mem = rcu_dereference(mm->mem_cgroup);
    if (mem->control_type == MEM_CGROUP_TYPE_ALL)
- return mem_cgroup_charge(page, mm, gfp_mask);
+ return mem_cgroup_charge_common(page, mm, gfp_mask, 1);
    else
        return 0;
}

```

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