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Subject: [PATCH v3 02/13] memcg: Reclaim when more than one page needed.  
Posted by [Glauber Costa](#) on Tue, 18 Sep 2012 14:03:59 GMT  
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mem\_cgroup\_do\_charge() was written before kmem accounting, and expects three cases: being called for 1 page, being called for a stock of 32 pages, or being called for a hugepage. If we call for 2 or 3 pages (and both the stack and several slabs used in process creation are such, at least with the debug options I had), it assumed it's being called for stock and just retried without reclaiming.

Fix that by passing down a minsize argument in addition to the csize.

And what to do about that (csize == PAGE\_SIZE && ret) retry? If it's needed at all (and presumably is since it's there, perhaps to handle races), then it should be extended to more than PAGE\_SIZE, yet how far? And should there be a retry count limit, of what? For now retry up to COSTLY\_ORDER (as page\_alloc.c does) and make sure not to do it if \_\_GFP\_NORETRY.

[v4: fixed nr pages calculation pointed out by Christoph Lameter ]

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mm/memcontrol.c | 16 ++++++-----  
1 file changed, 9 insertions(+), 7 deletions(-)

diff --git a/mm/memcontrol.c b/mm/memcontrol.c

index 9d3bc72..b12121b 100644

--- a/mm/memcontrol.c

+++ b/mm/memcontrol.c

@@ -2232,7 +2232,8 @@ enum {  
};

static int mem\_cgroup\_do\_charge(struct mem\_cgroup \*memcg, gfp\_t gfp\_mask,

- unsigned int nr\_pages, bool oom\_check)

+ unsigned int nr\_pages, unsigned int min\_pages,

+ bool oom\_check)

{  
 unsigned long csize = nr\_pages \* PAGE\_SIZE;  
 struct mem\_cgroup \*mem\_over\_limit;  
 @@ -2255,18 +2256,18 @@ static int mem\_cgroup\_do\_charge(struct mem\_cgroup \*memcg,  
 gfp\_t gfp\_mask,

```

} else
    mem_over_limit = mem_cgroup_from_res_counter(fail_res, res);
/*
- * nr_pages can be either a huge page (HPAGE_PMD_NR), a batch
- * of regular pages (CHARGE_BATCH), or a single regular page (1).
- *
- * Never reclaim on behalf of optional batching, retry with a
- * single page instead.
- */
- if (nr_pages == CHARGE_BATCH)
+ if (nr_pages > min_pages)
    return CHARGE_RETRY;

    if (!(gfp_mask & __GFP_WAIT))
        return CHARGE_WOULDBLOCK;

+ if (gfp_mask & __GFP_NORETRY)
+ return CHARGE_NOMEM;
+
    ret = mem_cgroup_reclaim(mem_over_limit, gfp_mask, flags);
    if (mem_cgroup_margin(mem_over_limit) >= nr_pages)
        return CHARGE_RETRY;
@@ -2279,7 +2280,7 @@ static int mem_cgroup_do_charge(struct mem_cgroup *memcg, gfp_t
gfp_mask,
    * unlikely to succeed so close to the limit, and we fall back
    * to regular pages anyway in case of failure.
    */
- if (nr_pages == 1 && ret)
+ if (nr_pages <= (1 << PAGE_ALLOC_COSTLY_ORDER) && ret)
    return CHARGE_RETRY;

/*
@@ -2414,7 +2415,8 @@ again:
    nr_oom_retries = MEM_CGROUP_RECLAIM_RETRIES;
}

- ret = mem_cgroup_do_charge(memcg, gfp_mask, batch, oom_check);
+ ret = mem_cgroup_do_charge(memcg, gfp_mask, batch, nr_pages,
+ oom_check);
    switch (ret) {
    case CHARGE_OK:
        break;
--

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1.7.11.4

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