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Subject: Re: [PATCH 07/10] memcg: Stop res\_counter underflows.  
Posted by [Suleiman Souhlal](#) on Wed, 29 Feb 2012 19:17:27 GMT  
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On Wed, Feb 29, 2012 at 9:05 AM, Glauber Costa <glommer@parallels.com> wrote:

> On 02/28/2012 08:07 PM, Suleiman Souhlal wrote:

>>

>> On Tue, Feb 28, 2012 at 5:31 AM, Glauber Costa<glommer@parallels.com>

>> wrote:

>>>

>>> I don't fully understand this.

>>> To me, the whole purpose of having a cache tied to a memcg, is that we

>>> know

>>> all allocations from that particular cache should be billed to a specific

>>> memcg. So after a cache is created, and has an assigned memcg,

>>> what's the point in bypassing it to root?

>>>

>>> It smells like you're just using this to circumvent something...

>>

>>

>> In the vast majority of the cases, we will be able to account to the

>> cgroup.

>> However, there are cases when `__mem_cgroup_try_charge()` is not able to

>> do so, like when the task is being killed.

>> When this happens, the allocation will not get accounted to the

>> cgroup, but the slab accounting code will still think the page belongs

>> to the memcg's `kmem_cache`.

>> So, when we go to free the page, we assume that the page belongs to

>> the memcg and uncharge it, even though it was never charged to us in

>> the first place.

>>

>> This is the situation this patch is trying to address, by keeping a

>> counter of how much memory has been bypassed like this, and uncharging

>> from the root if we have any outstanding bypassed memory.

>>

>> Does that make sense?

>>

> Yes, but how about the following:

>

> I had a similar problem in tcp accounting, and solved that by adding

> `res_counter_charge_nofail()`.

>

> I actually implemented something very similar to your bypass (now that I

> understand it better...) and gave up in favor of this.

>

> The tcp code has its particularities, but still, that could work okay for

> the general slab.

>

> Reason being:

>

> Consider you have a limit of X, and is currently at X-1. You bypassed a  
> page.

>

> So in reality, you should fail the next allocation, but you will not -  
> (unless you start considering the bypassed memory at allocation time as  
> well).

>

> If you use `res_counter_charge_nofail()`, you will:

>

> 1) Still proceed with the allocations that shouldn't fail - so no  
> difference here

> 2) fail the normal allocations if you have "bypassed" memory filling  
> up your limit

> 3) all that without coupling something alien to the `res_counter` API.

Ok. I'll give it a try.

Thanks!

-- Suleiman