
Subject: Re: [RFC][for -mm] memory controller enhancements for reclaiming take2
[5/8] throttling simultaneous
Posted by [KAMEZAWA Hiroyuki](#) on Tue, 04 Dec 2007 01:33:32 GMT
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On Mon, 3 Dec 2007 09:24:18 -0500
Rik van Riel <riel@redhat.com> wrote:

> On Mon, 3 Dec 2007 18:39:21 +0900
> KAMEZAWA Hiroyuki <kamezawa.hiroyu@jp.fujitsu.com> wrote:
>
> > Add throttling direct reclaim.
> >
> > Trying heavy workload under memory controller, you'll see too much
> > iowait and system seems heavy. (This is not good.... memory controller
> > is usually used for isolating system workload)
> > And too much memory are reclaimed.
> >
> > This patch adds throttling function for direct reclaim.
> > Currently, num_online_cpus/(4) + 1 threads can do direct memory reclaim
> > under memory controller.
>
> The same problems are true of global reclaim.
>
> Now that we're discussing this RFC anyway, I wonder if we
> should think about moving this restriction to the global
> reclaim level...
>
Hmm, I agree to some extent.
I'd like to add the same level of parameters to memory controller AMAP.

But, IMHO, there are differences basically.

Memory controller's reclaim is much heavier than global LRU because of increasing footprint, the number of atomic ops....
And memory controller's reclaim policy is simpler than global because it is not kicked by memory shortage and almost all gfp_mask is GFP_HIGHUSER_MOVABLE and order is always 0.

I think starting from throttling memory controller is not so bad because it's heavy and it's simple. The benefit of this throttling is clearer than globals.

Adding this kind of controls to global memory allocator/LRU may cause unexpected slow down in application's response time. High-response application users may dislike this. We may need another gfp_flag or sysctl to allow throttling in global.

For memory controller, the user sets its memory limitation by himself. He can

adjust parameters and the workload. So, I think this throttling is not so problematic in memory controller as global.

Of course, we can export "do throttling or not" control in cgroup interface.

Thanks,
-Kame

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