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Subject: Re: [PATCH 3/3][RFC] Containers: Pagecache controller reclaim  
Posted by [Aubrey Li](#) on Tue, 27 Mar 2007 10:53:39 GMT  
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On 3/27/07, Vaidyanathan Srinivasan <[svaidy@linux.vnet.ibm.com](mailto:svaidy@linux.vnet.ibm.com)> wrote:

>  
>  
> Aubrey Li wrote:  
> > On 3/27/07, Vaidyanathan Srinivasan <[svaidy@linux.vnet.ibm.com](mailto:svaidy@linux.vnet.ibm.com)> wrote:  
> >> Correct, shrink\_page\_list() is called from shrink\_inactive\_list() but  
> >> the above code is patched in shrink\_active\_list(). The  
> >> 'force\_reclaim\_mapped' label is from function shrink\_active\_list() and  
> >> not in shrink\_page\_list() as it may seem in the patch file.  
> >>  
> >> While removing pages from active\_list, we want to select only  
> >> pagecache pages and leave the remaining in the active\_list.  
> >> page\_mapped() pages are \_not\_ of interest to pagecache controller  
> >> (they will be taken care by rss controller) and hence we put it back.  
> >> Also if the pagecache controller is below limit, no need to reclaim  
> >> so we put back all pages and come out.  
> >  
> > Oh, I just read the patch, not apply it to my local tree, I'm working  
> > on 2.6.19 now.  
> > So the question is, when vfs pagecache limit is hit, the current  
> > implementation just reclaim few pages, so it's quite possible the  
> > limit is hit again, and hence the reclaim code will be called again  
> > and again, that will impact application performance.  
>  
> Yes, you are correct. So if we start reclaiming one page at a time,  
> then the cost of reclaim is very high and we would be calling the  
> reclaim code too often. Hence we have a 'buffer zone' or 'reclaim  
> threshold' or 'push back' around the limit. In the patch we have a 64  
> page (256KB) NR\_PAGES\_RECLAIM\_THRESHOLD:  
>  
> int pagecache\_acct\_shrink\_used(unsigned long nr\_pages)  
> {  
> unsigned long ret = 0;  
> atomic\_inc(&reclaim\_count);  
> +  
> + /\* Don't call reclaim for each page above limit \*/  
> + if (nr\_pages > NR\_PAGES\_RECLAIM\_THRESHOLD) {  
> + ret += shrink\_container\_memory(  
> + RECLAIM\_PAGECACHE\_MEMORY, nr\_pages, NULL);  
> + }  
> +  
> return 0;  
> }  
>

> Hence we do not call the reclaimer if the threshold is exceeded by  
> just 1 page... we wait for 64 pages or 256KB of pagecache memory to go  
> overlimit and then call the reclaimer which will reclaim all 64 pages  
> in one shot.

>

> This prevents the reclaim code from being called too often and it also  
> keeps the cost of reclaim low.

>

> In future patches we are planing to have a percentage based reclaim  
> threshold so that it would scale well with the container size.

>

Actually it's not a good idea IMHO. No matter how big the threshold  
is, it's not suitable. If it's too small, application performance will  
be impacted seriously after pagecache limit is hit. If it's too large,  
Limiting pagecache is useless.

Why not reclaim pages as much as possible when the pagecache limit is hit?

-Aubrey

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