Subject: Re: [dm-devel] Re: dm: bounce_pfn limit added
Posted by vaverin on Wed, 31 Oct 2007 07:13:33 GMT
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Alasdair G Kergon wrote:
> So currently we treat bounce_pfn as a property that does not need to be
> propagated through the stack.
>
> But is that the right approach?
> - Is there a blk_queue_bounce() missing either from dm or elsewhere?
> (And BTW can the bio_alloc() that lurks within lead to deadlock?)
>
> Firstly, what's going wrong?
> - What is the dm table you are using? (output of 'dmsetup table')
> - Which dm targets and with how many underlying devices?
> - Which underlying driver?
> - Is this direct I/O to the block device from userspace, or via some
> filesystem or what?

On my testnode I have 6 Gb memory (1Gb normal zone for i386 kernels),
i2o hardware and lvm over i2o.

```
[root@ts10 ~]# dmsetup table
vzvg-vz: 0 10289152 linear 80:5 384
vzvg-vzt: 0 263127040 linear 80:5 10289536
[root@ts10 ~]# cat /proc/partitions
major minor  #blocks  name

  80     0  143374336 i2o/hda
  80     1     514048 i2o/hda1
  80     2    4096575 i2o/hda2
  80     3    2040255 i2o/hda3
  80     4          1 i2o/hda4
  80     5  136721151 i2o/hda5
 253     0    5144576 dm-0
 253     1  131563520 dm-1
```

Diotest from LTP test suite with ~1Mb buffer size and files on dm-over-i2o
paritions corrupts i2o_iop0_msg_inpool slab.

I2o on this node is able to handle only requests with up to 38 segments. Device
mapper correctly creates such requests and as you know it uses
max_pfn=BLK_BOUNCE_ANY. When this request translates to underlying device, it
clones bio and cleans BIO_SEG_VALID flag.

In this way underlying device calls blk_recalc_rq_segments() to recount number
of segments. However blk_recalc_rq_segments uses bounce_pfn=BLK_BOUNCE_HIGH
taken from underlying device. As result number of segments become over than

max_hw_segments limit.

Unfortunately there is not any checks and when i2o driver handles this incorrect request it fills the memory out of i2o_iop0_msg_inpool slab.

Thank you,
Vasily Averin