Subject: Re: Memory overflow in an OpenVZ VPS
Posted by samuli.seppanen on Wed, 26 Sep 2007 13:00:33 GMT

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>> Hello everybody!
>>
>> I'm having problems with OpenVZ memory management. I have (probably)
>> read all the Wiki articles there are that touch that subject, and
>> browsed through the mailing list archives to no avail.
>>
>> Most of my OpenVZ VPS'es work just fine after a bit of fiddling, but one
>> of them is misbehaving constantly. It always runs out of memory, no
>> matter how much I give it. It is running 10 instances of a same server
>> to give better interactive responsiveness. I was just wondering if the
>> server program is leaking memory and causing this erratic behavior, or
>> if there is something wrong with my OpenVZ VPS's configuration.
>>
>
>> The physical server runs only this one VPS. The hardware node has 2GB of
>> RAM plus 2GB of swap. The VPS is given roughly 3.5GB of that if
>> available (privvmpages limit). It is guaranteed 2.5GB (vmguarpages
>> barrier). This is FAR more than the server software in question needs,
>> but still it occasionally (and predictably) runs out of memory.
>>
>> The strange thing about the VPS is that the HELD values in oomguarpages
>> and privvmpages are _much_ lower than the MAXHELD values - almost
>> triple. There should be no usage peaks that should cause this kind of
>> asymmetry, unless an instance of the server software goes amok.
>
> Yes, privvmpages maxheld shows that software tried to allocate lots of memory in reality.
> And this VE used 874046 pages of RAM+swap (oomguarpages) in the peak, i.e. ~3.4Gb !!!
> It looks like accounting doesn't lie and your software really tries
> to allocate that much from time to time.

Yes, oomguarpages maxheld is suspiciously high, and probably slows
things down considerably when the server starts swapping.

>
> Have you seen yourself when this was happening and failcounters were increasing?
> If you can observe this VE being near the limit,
> run top in host system and sort processes by RSS usage.
> This will show you which processes consume most of the memory (RSS column).

I'll have to monitor the VPS when it's approaching the privvmpages
limit. Luckily monit will tell me when that is happening :). I'll let
you know what I find out. It starts to seem like the servers in the VPS
are just misbehaving.

> BTW, have you did something to make VE use less memory (like server restart)
> or the memory usage drops that low itself after some time of being high?

No, I've done nothing special after the latest failure. Sometimes one of
the server instances dies and has to be restarted, but it's only _one_
instance, and there are several others still around.

>> The VPS's resource information is shown below. The parameters are not
>> optimized, as you can see, but that not my biggest problem right now :).
>> So can you see anything wrong with these settings, or should I take a
>> look at the server software that is running on the VPS?
>>
>> [root@VPS_NODE ~]# cat /proc/user_beancounters
>> Version: 2.5

uid	resource	held	maxheld	barrier	limit	failcnt
103:	kmemsize	19265157	40765738	183079731	201387704	0
	lockedpages	0	0	8939	8939	0
	privvmpages	383368	930126	917504	930000	153
	shmpages	21647	24239	31099	31099	0
	dummy	0	0	0	0	0
	numproc	229	524	8000	8000	0
	physpages	236810	485688	0	2147483647	0
	vmguarpages	0	0	655360	2147483647	0
	oomguarpages	382472	874046	310999	2147483647	0
	numtcpsock	532	793	8000	8000	0
	numflock	18	594	1000	1100	0
	numpty	1	4	512	512	0
	numsiginfo	0	39	1024	1024	0
	tcpsndbuf	3524644	4236356	28258577	61026577	0
	tcprcvbuf	3530300	6528712	28258577	61026577	0
	othersockbuf	190060	1737340	14129288	46897288	0
	dgramrcvbuf	0	41836	14129288	14129288	0
	numothersock	204	1169	8000	8000	0
	dcachesize	0	0	39977755	41177088	0
	numfile	11106	22346	71488	71488	0
	dummy	0	0	0	0	0
	dummy	0	0	0	0	0
	dummy	0	0	0	0	0
	numiptent	10	10	200	200	0

>>
>> [root@HOST_NODE ~]# free
>>   total   used   free   shared   buffers   cached
>> Mem: 2073344   2017716   55628   0   66928   954828
>> -/+ buffers/cache: 995960   1077384
>> Swap: 2031608   586508   1445100
>
>> Anyways, thanks for a great Open Source virtualization project!

> you are welcome :@)
>
> Thanks,
> Kirill