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Subject: Re: Using threads on OpenVZ, and memory allocation versus memory usage

Posted by [hvdkamer](#) on Wed, 09 May 2007 10:47:39 GMT

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The above is a proof of concept program, but may be you like something from real live? On the internet you can find many people who have trouble installing Apache 2 mpm worker on Virtuozzo/OpenVZ based VE's with a privvmpages of around 512 MiB. The same applied on my virtual servers which are running on OpenVZ. So I investigated and found the following:

[1] very minimalistic server, only 4 processes (init, cron, syslogd and OpenSSH)

privvmpages	663	972	131072	147456	0
physpages	486	739	0 (2^63-1)		0

As you can see, hardly any memory is being used, and physpages is almost the same as privvmpages. Now I install Apache 2 mpm worker (Debian package). On a normal server which isn't stripped down like mine, you run into problems. On this stripped down server and 512 MiB burstable memory it is just possible. After a reboot, I see the following:

privvmpages	112933	122415	131072	147456	0
physpages	1573	12562	0 (2^63-1)		0

As you can see, there is a huge difference between physpages and privvmpages. You can't do anything with this server, because it is almost out of memory. Starting aptitude for example crashes. When I do a pmap on the four instances (two are control forks, two start in the default configuration 25 threads each) I see the following:

```
ve35:/# pmap 26120
26120: /usr/sbin/apache2 -k start -DSSL
...
total 7224K
ve35:/# pmap 26121
26121: /usr/sbin/apache2 -k start -DSSL
...
total 7016K
ve35:/# pmap 26122
26122: /usr/sbin/apache2 -k start -DSSL
...
405dd000 8188K rwx-- [ anon ]
40ddc000 4K ----- [ anon ]
=> 27 times
...
```

```
total 228444K
ve35:/# pmap 26127
26127: /usr/sbin/apache2 -k start -DSSL
...
405dd000 8188K rwx-- [anon]
40ddc000 4K ----- [anon]
=> 27 times
...
total 228444K
```

So every thread uses a buffer of 8 MiB. Most of the times it doesn't use this. On a normal machine with 512 MiB available RAM this is not a problem. You can start aptitude and a lot more programs. The only solution is configuring Apache to use less default waiting threads. In my opinion 50 is way too much for most servers, but this is the default. And according to physpages and a free on the hardware node, it is not a real problem that this huge amount disappears in buffers...

This strange behavior between a server with real RAM and an OpenVZ server with the same amount is seen in more situations. I even asked about this in this forum but got no answer. I now know what is the problem and most of the times I can work around it. But it is always a discussion with clients, because they see it working on a normal server.

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